

ICD-10

Procedure Coding System

FINAL DRAFT

Training Manual

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Chapter 1

Structure and Objectives: ICD-10-PCS

This chapter describes the alphanumeric code structure of ICD-10-PCS, the Index and Tabular List. The objectives and guidelines that governed the development of ICD-10-PCS are also reviewed.

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Structure and Objectives: ICD-10-PCS

THE TENTH EDITION OF the International Classification of Diseases was issued in 1993 by the World Health Organization (WHO). WHO is responsible for maintaining the ICD classification. ICD-10 does not include a procedure classification.

The Health Care Financing Administration (HCFA) is responsible for maintenance of the procedure classification of ICD-9-CM. Recognizing that the procedure classification of ICD-9-CM lacks specificity and does not provide for sufficient expansion to support government payment systems and data needs, HCFA issued a three year contract to 3M Health Information Systems to develop a new ICD-10 Procedure Coding System (ICD-10-PCS). The new system is designed to replace ICD-9-CM procedure codes for reporting inpatient procedures.

Objectives

Four major objectives have guided the development of ICD-10 PCS.

Completeness There should be a unique code for all substantially different procedures. Currently, procedures on different body parts, with different approaches, or of different types are sometimes assigned to the same code.

Expandability As new procedures are developed, the structure of ICD-10-PCS should allow them to be easily incorporated as unique codes.

Multiaxial ICD-10-PCS should have a multiaxial structure, with each code character having the same meaning within the specific procedure section and across procedure sections, to the extent possible.

Standardized terminology ICD-10-PCS should include definitions of the terminology used. While the meaning of specific words can vary in common usage, ICD-10-PCS should not include multiple meanings for the same term, and each term should be assigned a specific meaning.

If ICD-10-PCS is complete, expandable, and multiaxial, with standardized terminology, then ICD-10-PCS should allow coding specialists to determine accurate codes with minimal effort.

Exercise one Achievement of the four major objectives guiding the development of ICD-10-PCS will result in a classification system that is:

1. _____
2. _____
3. _____
4. _____

Code structure

ICD-10-PCS has a seven character alphanumeric code structure. Each character has up to 34 different values. The 10 digits, 0-9, and 24 letters, A-H, J-N, and P-Z, may be assigned to each character. The letters O and I are not used in order to avoid confusion with the digits 0 and 1. In ICD-10-PCS the term “procedure” is used to refer to the complete specification of the seven characters.

Exercise two Provide the requested information about the ICD-10-PCS code structure:

1. The ICD-10-PCS has a _____ character code structure.
2. The characters in ICD-10-PCS are_____.
3. Each character has up to _____ different values.
4. The letters _____ are not used as character values.
5. The complete specification of seven characters describes a(n)_____ in ICD-10-PCS.

Sections (character 1)

Procedures are divided into sections that relate to the type of procedure (e.g., medical and surgical, imaging). The first character of the procedure code identifies the section. To assign an ICD-10-PCS code, the section where the procedure is coded must be identified. For example, a chest x-ray is an imaging procedure, a breast biopsy is a medical and surgical procedure, and crisis intervention is a mental health procedure. The sections are shown in Table 1-1.

Table 1-1 Sections

Sections	
0	Medical and Surgical
1	Obstetrics
2	Placement
3	Administration
4	Measurement and Monitoring
5	Imaging
6	Nuclear Medicine
7	Radiation Oncology
8	Osteopathic
9	Rehabilitation and Diagnostic Audiology
B	Extracorporeal Assistance and Performance
C	Extracorporeal Therapies
D	Laboratory
F	Mental Health
G	Chiropractic
H	Miscellaneous

Exercise three Identify the first character that would be assigned to the following procedures:

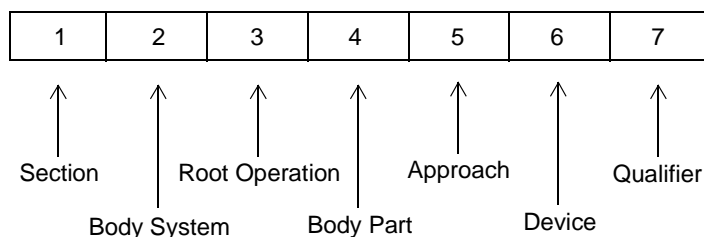
1. _____ **Gait training**
2. _____ **Cesarean section**
3. _____ **Computerized tomography, spine**
4. _____ **Cholecystectomy**
5. _____ **Insertion radium into cervix (brachytherapy)**
6. _____ **Cranioplasty**

Characters

Characters 2-7 have a standard meaning within each section but may have different meanings across sections. The meanings and values for each character are described in each section. For example, the seven characters for the Medical and Surgical sections and the Imaging section are as follows:

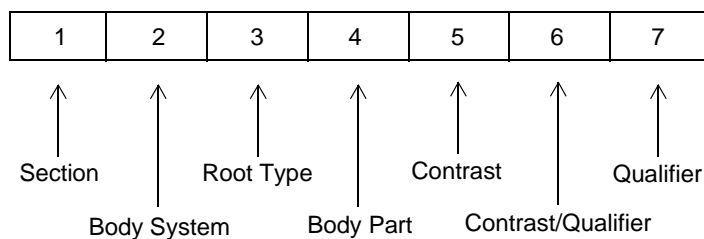
Medical and surgical procedures

The seven characters for medical and surgical procedures have the following meanings.



Imaging procedures

The seven characters for imaging procedures have the following meaning:



Each code must include seven characters. The letter Z is used to indicate that a character is not applicable for a specific procedure.

Body systems (character 2)

The second character identifies the body system in all sections except Rehabilitation and Mental Health. In those sections, the second character identifies the type of procedure performed. The body systems and characters for each section are described in subsequent chapters.

Root operations (character 3)

The third character identifies the root operation in all sections except Radiation Oncology, Rehabilitation, and Mental Health. In many sections, only a few root operations are performed, and these operations are defined for use in that section, such as irrigation in the Administration section. However, the Medical and Surgical section uses an extensive list of root operations. The Obstetrics and Placement sections also use some of these root operations in addition to section-specific root operations.

Because of their use in multiple sections, the Medical and Surgical root operations are listed in Table 1-2.

Table 1-2 Medical and Surgical Root Operation Definitions

0	Alteration	<p>Definition: Modifying the natural anatomical structure of a body part without affecting the function of the body part</p> <p>Explanation: Principal purpose is to improve appearance</p> <p>Examples: Face lift Breast augmentation</p>
1	Bypass	<p>Definition: Altering the route of passage of the contents of a tubular body part</p> <p>Explanation: Rerouting contents around an area of a body part to another distal (down stream) area in the normal route; rerouting the contents to another different but similar route and body part; or to an abnormal route and another dissimilar body part.</p> <p>Encompasses: Diversion, reroute, shunt</p> <p>Examples: Gastrojejunal bypass Coronary artery bypass</p>
2	Change	<p>Definition: Taking out or off a device from a body part and putting back an identical or similar device in or on the same body part without cutting or puncturing the skin or a mucous membrane</p> <p>Explanation: Requires no invasive intervention</p> <p>Example: Change a drainage tube</p>
3	Control	<p>Definition: Stopping, or attempting to stop, postprocedural bleeding</p> <p>Explanation: Confined to postprocedural bleeding and limited to the Anatomical Regions, Upper Extremities and Lower Extremities Body Systems.</p> <p>Examples: Control of postprostatectomy bleeding Control of postpneumonectomy bleeding</p>
4	Creation	<p>Definition: Making a new structure that does not physically take the place of a body part</p> <p>Explanation: Confined to sex change operations where genitalia are made</p> <p>Encompasses: Formation</p> <p>Examples: Create an artificial vagina in a male Create an artificial penis in a female</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

5	Destruction	<p>Definition: Eradicating all or a portion of a body part</p> <p>Explanation: The actual physical destruction of all or a portion of a body part by the direct use of energy, force or a destructive agent. There is no tissue taken out.</p> <p>Encompasses: Ablation, cauterization, coagulation, crush, electrocoagulation, fulguration, mash, obliteration</p> <p>Examples: Fulgurate a rectal polyp Crush a fallopian tube</p>
6	Detachment	<p>Definition: Cutting off all or a portion of an extremity</p> <p>Explanation: Pertains only to extremities. The body part determines the level of the detachment. All of the body parts distal to the detachment level are detached.</p> <p>Encompasses: Amputation</p> <p>Examples: Shoulder disarticulation Below knee amputation</p>
7	Dilation	<p>Definition: Expanding the orifice or the lumen of a tubular body part</p> <p>Explanation: Stretching by pressure using intraluminal instrumentation</p> <p>Examples: Dilate the trachea Dilate the anal sphincter</p>
8	Division	<p>Definition: Separating, without taking out, all or a portion of a body part</p> <p>Explanation: Separating into two or more portions by sharp or blunt dissection</p> <p>Encompasses: Bisection</p> <p>Examples: Bisect an ovary Spinal cordotomy Divide a patent ductus</p>
9	Drainage	<p>Definition: Taking or letting out fluids and/or gases from a body part</p> <p>Explanation: The fluids or gases may be normal or abnormal</p> <p>Encompasses: Aspiration, evacuation, marsupialization, needle, puncture, rupture, stab, suction, tap, unbridle, undercut, window</p> <p>Examples: I & D of an abscess Thoracentesis</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

B	Excision	<p>Definition: Cutting out or off, without replacement, a portion of a body part</p> <p>Explanation: Involves the act of cutting with either a sharp instrument or other method such as a hot knife or laser</p> <p>Encompasses: Biopsy, core needle biopsy, debridement, debulk, fine needle aspiration, punch, shuck, trim, wedge</p> <p>Examples: Partial nephrectomy Wedge ostectomy Pulmonary segmentectomy</p>
C	Extirpation	<p>Definition: Taking or cutting out solid matter from a body part</p> <p>Explanation: Taking out solid matter (which may or may not have been broken up) by cutting with either a sharp instrument or other method such as a hot knife or laser, by blunt dissection, by pulling, by stripping or by suctioning, with the intent not to take out any appreciable amount of the body part. The solid matter may be imbedded in the tissue of the body part or in the lumen of a tubular body part.</p> <p>Examples: Sequestrectomy Cholelithotomy</p>
D	Extraction	<p>Definition: Taking out or off all or a portion of a body part</p> <p>Explanation: The body part is not completely dissected free but is pulled or stripped by the use of force (e.g., manual, suction, etc.) from its location</p> <p>Encompasses: Abrasion, avulsion, strip</p> <p>Examples: Tooth extraction Vein stripping Dermabrasion</p>
F	Fragmentation	<p>Definition: Breaking down solid matter in a body part</p> <p>Explanation: Physically breaking up solid matter which is not normally present in a body part such as stones and foreign bodies. The break up may be accomplished by direct physical force or shock waves applied directly or indirectly through intervening layers. The resulting debris is not taken out but is passed from the body or absorbed by the body. The solid matter may be in the lumen of a tubular body part or in a body cavity.</p> <p>Encompasses: Pulverization</p> <p>Examples: Lithotripsy, urinary stones Lithotripsy, gallstones</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

G	Fusion	<p>Definition: Joining together portions of an articular body part rendering the articular body part immobile</p> <p>Explanation: Confined to joints</p> <p>Examples: Spinal fusion Ankle arthrodesis</p>
H	Insertion	<p>Definition: Putting in a nonbiological appliance that monitors, assists, performs or prevents a physiological function, but does not physically take the place of a body part</p> <p>Encompasses: Cutdown, implantation, passage</p> <p>Examples: Implant a radioactive element Insert a diaphragmatic pacemaker</p>
J	Inspection	<p>Definition: Visually and/or manually exploring a body part</p> <p>Explanation: Looking at a body part directly or with an optical instrument or feeling the body part directly or through intervening body layers</p> <p>Encompasses: Check, enter, examination, exploration, expose, open, probe</p> <p>Examples: Diagnostic arthroscopy Exploratory laparotomy</p>
K	Map	<p>Definition: Locating the route of passage of electrical impulses and/or locating functional areas in a body part</p> <p>Explanation: Confined to the cardiac conduction mechanism and the central nervous system</p> <p>Encompasses: Localization</p> <p>Examples: Map cardiac conduction pathways Locate cortical areas</p>
L	Occlusion	<p>Definition: Completely closing the orifice or lumen of a tubular body part</p> <p>Explanation: Can be accomplished intraluminally or extraluminally</p> <p>Encompasses: Clamp, clip, embolization, interruption, ligation, stoppage, suture ligation</p> <p>Examples: Ligate the vas deferens Fallopian tube ligation</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

M	Reattachment	<p>Definition: Putting back in or on all or a portion of a body part</p> <p>Explanation: Pertains only to body parts or appendages that have been severed. May or may not involve the re-establishment of vascular and nervous supplies.</p> <p>Encompasses: Replantation</p> <p>Examples: Reattach penis Reattach a hand Replant parathyroids</p>
N	Release	<p>Definition: Freeing a body part</p> <p>Explanation: Eliminating abnormal compression or restraint by force or sharp or blunt dissection. Some of the restraining tissue may be taken out but none of the body part itself is taken out.</p> <p>Encompasses: Decompression, free, lysis, mobilization, relaxation, relief, section, take down</p> <p>Examples: Lyse peritoneal adhesions Free median nerve</p>
P	Removal	<p>Definition: Taking out or off a device from a body part</p> <p>Explanation: May or may not involve invasive intervention</p> <p>Examples: Remove a drainage tube Remove a cardiac pacemaker</p>
Q	Repair	<p>Definition: Restoring to the extent possible, a body part to its natural anatomic structure</p> <p>Explanation: An operation of exclusion. Most of the other operations are some type of repair but if the objective of the procedure is one of the other operations then that operation is coded. If none of the other operations are performed to accomplish the repair then the operation “repair” is coded.</p> <p>Encompasses: Closure, correction, fix, reconstruction, reduction, reformation, reinforcement, restoration, stitch, suture</p> <p>Examples: Tracheoplasty Suture laceration Herniorrhaphy</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

R	Replacement	<p>Definition: Putting in or on a biological or synthetic material that physically takes the place of all or a portion of a body part</p> <p>Explanation: The biological material may be living similar or dissimilar tissue from the same individual or non-living similar or dissimilar tissue from the same individual, another individual or animal. The body part replaced may have been previously taken out, previously replaced, or may be taken out concomitantly with the replacement.</p> <p>Examples: Replace external ear with synthetic prosthesis Total hip replacement Replacement of part of the aorta Free skin graft Pedicle skin graft</p>
S	Reposition	<p>Definition: Moving to its normal location or other suitable location all or a portion of a body part</p> <p>Explanation: The body part repositioned is aberrant, compromised, or may have been detached. If attached, it may or may not be detached to accomplish the repositioning.</p> <p>Examples: Reposition undescended testicle Reposition an aberrant kidney</p>
T	Resection	<p>Definition: Cutting out or off, without replacement, all of a body part</p> <p>Explanation: Involves the act of cutting with either a sharp instrument or other method such as a hot knife or laser</p> <p>Examples: Total gastrectomy Pneumonectomy Total nephrectomy</p>
V	Restriction	<p>Definition: Partially closing the orifice or lumen of a tubular body part</p> <p>Explanation: Can be accomplished intraluminally or extraluminally</p> <p>Encompasses: Band, cerclage, collapse, compression, pack, tamponade</p> <p>Examples: Fundoplication Cervical cerclage</p>

Table 1-2 Medical and Surgical Root Operation Definitions (Continued)

W	Revision	<p>Definition: Correcting a portion of a previously performed procedure</p> <p>Explanation: Redoing a portion of a previously performed procedure that has failed to function as intended. Revisions exclude the complete redo of the procedure and procedures to correct complications that do not require the redoing of a portion of the original procedure, such as the control of bleeding.</p> <p>Examples: Revise hip replacement Revise gastroenterostomy</p>
X	Transfer	<p>Definition: Moving, without taking out, all or a portion of a body part to another location to take over the function of all or a portion of a body part</p> <p>Explanation: The body part transferred is not detached from the body. Its vascular and nerve supply remain intact. The body part whose function is taken over may or may not be similar.</p> <p>Encompasses: Transposition</p> <p>Examples: Nerve transfer Tendon transfer</p>
Y	Transplantation	<p>Definition: Putting in or on all or a portion of a living body part taken from another individual or animal to physically take the place and/or function of all or a portion of a similar body part</p> <p>Explanation: The native body part may or may not be taken out. The transplanted body part may either physically take the place of the native body part or simply take over all or a portion of its function.</p> <p>Examples: Lung transplant Kidney transplant</p>

Exercise four Place the character for the root operation term before its definition:

Root operation:

1 Bypass	N Release
5 Destruction	P Removal
9 Drainage	Q Repair
B Excision	T Resection
J Inspection	W Revision

Definition:

1. _____ Taking or letting out fluids and/or gases from a body part
2. _____ Freeing a body part
3. _____ Taking out or off a device from a body part
4. _____ Visually and/or manually exploring a body part
5. _____ Restoring to the extent possible a body part to its natural anatomical structure
6. _____ Altering the route of passage of the contents of a tubular body part
7. _____ Cutting out or off, without replacement, all of a body part
8. _____ Eradicating all or a portion of a body part
9. _____ Correcting a portion of a previously performed procedure
10. _____ Cutting out or off, without replacement, a portion of a body part

Comparisons of each medical and surgical root operation are presented in Table 1-3.

Table 1-3 Comparison of Medical and Surgical Root Operations

Operation	Action	Object	Modification	Example
Operations that take out or eliminate all or a portion of a body part:				
Excision	Cutting out or off	Portion of a body part	Without replacement of the body part	Sigmoid polypectomy
Resection	Cutting out or off	All of a body part	Without replacement of the body part	Total nephrectomy
Extraction	Taking out or off	All or a portion of a body part	Without replacement of the body part	Tooth extraction
Destruction	Eradicating	All or a portion of a body part	Without taking out any of the body part Without replacement of the body part	Fulgurate rectal polyp
Detachment	Cutting off	All or a portion of an extremity	Without replacement of the extremity	Below knee amputation
Operations that involve putting in or on, putting back, or moving living body parts:				
Transplantation	Putting in or on	All or a portion of a living body part	Taken from other individual or animal; physically takes the place and/or function of all or a portion of a body part	Heart transplant
Reattachment	Putting back in or on	All or a portion of a body part	Body part was detached	Reattach finger
Reposition	Move	All or a portion of a body part	Put in its normal or other suitable location. Body part may or may not be detached	Undescended testicle
Transfer	Move	All or a portion of a body part	Without taking out the body part; takes over function of similar body part	Tendon transfer
Operations that take out or eliminate solid matter, fluids, or gases from a body part:				
Drainage	Taking or letting out	Fluid and/or gases from a body part	Without taking out any of the body part	I & D of an abscess
Extirpation	Taking or cutting out	Solid matter in a body part	Without taking out any of the body part	Sequestrectomy
Fragmentation	Breaking down	Solid matter in a body part	Without taking out any of the body part or any of the solid matter	Lithotripsy, gallstones

Table 1-3 Comparison of Medical and Surgical Root Operations (Continued)

Operation	Action	Object	Modification	Example
Operations that only involve examination of body parts and regions:				
Inspection	Visual and/or manual exploration	A body part		Diagnostic arthroscopy
Map	Locating	Route of passage of electrical impulses. Functional areas in a body part.		Cardiac conduction pathways. Locate cortical areas
Operations that can be performed only on tubular body parts:				
Bypass	Altering the route of passage	Contents of tubular body part	May include use of living tissue, non living biological material or synthetic material which does not take the place of the body part	Gastrojejunal bypass
Dilation	Expanding	Orifice or lumen of a tubular body part	By application of pressure	Dilate anal sphincter
Occlusion	Completely closing	Orifice or lumen of a tubular body part		Fallopian tube ligation
Restriction	Partially closing	Orifice or lumen of a tubular body part		Cervical cerclage
Operations that always involve devices:				
Insertion	Putting in	Non biological appliance	Does not physically take the place of body part	Pacemaker insertion
Replacement	Putting in or on	Biological or synthetic material; living tissue taken from same individual	Physically takes the place of all or a portion of a body part	Total hip replacement
Removal	Taking out or off	Device		Remove cardiac pacemaker
Change	Taking out or off and putting back	Identical or similar device	Without cutting or puncturing the skin or mucous membrane	Change a drainage tube
Miscellaneous operations:				
Alteration	Modifying	Natural anatomical structures of a body part	Without affecting function of a body part	Face lift
Creation	Making	New structure	Does not physically take the place of a body part	Artificial vagina

Table 1-3 Comparison of Medical and Surgical Root Operations (Continued)

Operation	Action	Object	Modification	Example
Control	Stopping or attempting to stop	Postprocedural bleeding		Postprostatectomy bleeding
Division	Separating	A body part	Without taking out any of the body part	Bisect ovary
Fusion	Joining together	An articular body part	Rendering body part immobile	Spinal fusion
Release	Freeing	A body part	By eliminating compression or restriction; without taking out any of the body part	Lyse peritoneal adhesions
Repair	Restoring	To the extent possible, a body part to its natural anatomic structure	May include use of living tissue, nonliving biological material or synthetic material which does not take the place or take over the function of the body part	Hernia repair
Revision	Correcting	Portion of a previously performed procedure	Procedure failed to function as intended	Revise hip replacement

Exercise five Identify the root operation term for each example:

1. _____ **Tendon transfer**
2. _____ **Appendectomy**
3. _____ **Diagnostic bronchoscopy**
4. _____ **Kidney transplant**
5. _____ **Cardioverter-defibrillator implantation**
6. _____ **Removal pulse generator for pacemaker**
7. _____ **Lithotripsy, bladder stone**
8. _____ **Fallopian tube ligation**
9. _____ **Elbow replacement revision**
10. _____ **Lysis peritoneal adhesions**

The ICD-10-PCS codes are described in the:

- ◆ Index
- ◆ Tabular Listing

The Index allows codes to be located by an alphabetic look up. For the purpose of this training manual, it is divided into two parts. The first part includes the Medical and Surgical, Obstetrics, Placement, Measurement and Monitoring, Administration, Extracorporeal Assistance and Performance, Extracorporeal Therapies and Miscellaneous Sections. It is arranged by root operation terms with subentries by Body System, by Body Part, and by Operation (for Revision) and by Device (for Change). The Index may also be consulted for a specific operation term such as Hysterectomy, where a cross reference advises the coder to see Resection, Female Reproductive System, OVT. Although coders need to become very familiar with the root operations, a code for a specific operation such as an appendectomy may be located in the Index more rapidly under the term Appendectomy than by consulting the root operation term Resection, subterms by Body Part, and Appendix.

The second part of the Index, which covers the remaining sections, is also arranged by root operations:

- ◆ Imaging - Fluoroscopy by Body System, by Body Part
- ◆ Nuclear Medicine - Nonimaging Assay by Body System, by Body Part
- ◆ Osteopathic - Treatment by Region

Codes may also be located in the second part of the Index by specific procedures such as Chest x-ray - see Plain Radiography, Anatomical Regions.

The Index refers the coder to a specific entry in the Tabular List by providing the first three or four digits of the procedure code. It is always necessary to refer to the Tabular List to obtain the complete code.

Sample index entries are shown on the next page.

Fasciectomy -- see Resection, Bursa, Ligaments, Fascia OMB....
 Fasciectomy -- see Excision, Bursa, Ligaments, Fascia OMT....
 Fascioplasty -- see Repair, Bursa, Ligaments, Fascia OMG....
 Fine Needle Aspiration -- see Excision
 Fix -- see Repair
 Flushing -- see Irrigation
 Formation -- see Creation
 Fragmentation
 by Body System
 Anatomical Regions OXF....
 Central Nervous System 00F...
 Eye 08F...
 Female Reproductive System 0VF....
 Gastrointestinal System 0DF...
 Heart & Great Vessels 02F....
 Hepatobiliary Sytem & Pancreas 0FF....
 Mouth & Throat 0CF....
 Respiratory System 0BF....
 Urinary Sytem 0TF....
 by Body Part
 Ampulla of Vater 0FFB....
 Anus 0DFQ....
 Appendix 0DFJ....
 Bladder 0TF8....
 Bladder Neck 0TF9....
 Bronchus
 Lingula 0BF9....
 Lower Lobe 0BF....
 Main 0BF....
 Middle Lobe, Right 0BF5....
 Segmental, Lingula 0BF9....
 Upper Lobe 0BF....

Exercise six Identify the root term you would locate in the Index to find the code for the following procedures:

1. **Tonsillectomy, complete** _____
2. **Tenorrhaphy** _____
3. **Thoracentesis** _____
4. **Gastrostomy** _____
5. **Partial hysterectomy** _____

Exercise seven Locate the following procedures in the Index and list the characters specified in the Index for each procedure:

1. **Insertion cardiac pacemaker chest tissue** _____
2. **Fragmentation calculus renal pelvis** _____
3. **Diagnostic laryngoscopy** _____
4. **Biopsy cervical lymph node** _____
5. **Release median nerve (carpal tunnel)** _____

Tabular list

The Tabular List provides the remaining characters needed to complete the code that was given in the Index. It is arranged by sections and most sections are subdivided by body systems. For each body system, the Tabular List begins with a listing of the operations performed, i.e., the root operations. When a procedure involves distinct parts, multiple codes are provided. A section of the operations performed listing for the central nervous system follows:

- ◆ Bypass
- ◆ Change
- ◆ Destruction
- ◆ Division
- ◆ Drainage
- ◆ Excision

Exercise eight Utilize the Central Nervous System Operations Performed listing to answer the following questions:

1. **A crushing of the trigeminal nerve is a(n) _____ operation.**
2. **A debulking of a brain tumor is a(n) _____ operation.**
3. **An evacuation of subdural space is a(n) _____ operation.**
4. **A shunting of cerebrospinal fluid from the cerebral ventricles to the peritoneum is a(n) _____ operation.**
5. **A lumbar puncture is a(n) _____ operation.**

The Tabular List for each body system also includes a listing of the body parts, approaches, devices and qualifiers for that system. These listings are followed by separate tables for each root operation in the body system. At the top of each of the tables is the name of the section, body system, and root operation, as well as the definition of the root operation. The list is formatted as a grid with rows and columns. The four columns in the grid represent the last four characters of the code (which are labeled Body Part, Approach, Device, and Qualifier for the Obstetrics and Medical and Surgical sections). Each row in the grid specifies the allowable combinations of the last four characters. For example, looking at the grid below, you can see that the code for delivery of retained products of conception is 10Y1BZZ, since this is the only allowable combination.

A coder may not complete a code by choosing entries from different rows (a row may consist of multiple entries in a box). Thus the code 10Y1BZ6 is not permitted, since the qualifier 6 can be used only with body part 0; it cannot be used with body part 1.

Section Body System Root Operation Definition of Root Operation			
1: OBSTETRICS O: PREGNANCY Y: DELIVERY: Assisting the passage of the products of conception from the genital canal			
Body Part Character 4	Approach Character 5	Device Character 6	Qualifier Character 7
0 Products of Conception	Z None	Z None	3 Low Forceps 4 Mid Forceps 5 High Forceps 6 Vacuum 7 Version Z None
1 Products of Conception, Retained	B Transorifice Intraluminal	Z None	Z None

Each row contains allowed combinations

Exercise nine Use your coding book tabular list to give the meaning of each character:

1. 07T50 ZZ

0 _____

7 _____

T _____

5 _____

0 _____

Z _____

Z _____

2. 0DBJ4 ZZ

0 _____
D _____
B _____
J _____
4 _____
Z _____
Z _____

3. 0HBT3 ZZ

0 _____
H _____
B _____
T _____
3 _____
Z _____
Z _____

Guidelines for coding with ICD-10-PCS

Several general guidelines were followed in the development of ICD-10-PCS:

Diagnostic information is not included in procedure description

When procedures are performed for specific conditions, the condition is not specified. Thus, there are no separate codes for procedures for aneurysms, cleft lip, strictures, neoplasms, hernias, etc. The diagnosis codes contain the specific information regarding the nature of the condition.

Except for devices and radiopharmaceuticals, not elsewhere classified options are not provided

All possible operations, body parts, and approaches are specified in ICD-10-PCS; thus there is no need for a “not elsewhere classified” option.

However, new devices are frequently being developed so it is necessary to have a “not elsewhere classified” option for devices that can be

used until the new device can be explicitly added to the coding system. Likewise, an NEC option is included in the nuclear medicine section to be used for newly approved radiopharmaceuticals until they can be explicitly added to the coding system.

Level of specificity

Based on the combinations of the seven character alphanumeric codes, all possible procedures were defined. Frequency of occurrence was not a consideration in the development of the system. A code was created for any procedure that could be performed.

The letter “Z” is used for characters 5, 6, and 7 to indicate that nothing in that character was applicable for a specific procedure.

Exercise ten

Indicate whether each statement describing ICD-10-PCS is True or False:

1. **(T) (F) There are separate codes for procedures involving neoplasms.**
2. **(T) (F) A “not elsewhere classified” option is provided for new devices and radiopharmaceuticals until they can be explicitly added to ICD-10-PCS.**
3. **(T) (F) A code was created for any procedure that could be performed, regardless of frequency of occurrence.**
4. **(T) (F) Diagnostic information is included in procedure descriptions.**

Chapter 2

Medical and Surgical Section

This chapter defines the code characters for the Medical and Surgical section. Coding rules for assigning ICD-10-PCS codes to medical and surgical procedures are presented. Practice exercises applying this information are also included.

Contents	Medical and Surgical Section 2.1
	First and second characters 2.3
	Exercise one 2.4
	Third character 2.5
	Fourth character 2.5
	Exercise two 2.5
	Exercise three 2.7
	Fifth character 2.7
	Exercise four 2.8
	Exercise five 2.10
	Exercise six 2.12
	Sixth character 2.12
	Seventh character 2.13
	Exercise seven 2.13
	Guidelines for coding with ICD-10-PCS 2.14
	Exercise eight 2.16

Medical and Surgical Section

First and second characters

The first character for the Medical and Surgical section is 0. The second character indicates the body system (e.g., gastrointestinal).

The Medical and Surgical section is divided into 31 body systems. These divisions often do not conform to traditional body systems, for multiple body system categories may be assigned to a traditional system. For example, the traditional musculoskeletal system is assigned eight different body systems: Muscles; Tendons; Bursa, Ligaments, Fascia; Head and Facial Bones; Upper Bones; Lower Bones; Upper Joints and Lower Joints.

Table 2-1 Medical and Surgical Body Systems

Body Systems	
0	Central Nervous System
1	Peripheral Nervous System
2	Heart and Great Vessels
3	Upper Arteries
4	Lower Arteries
5	Upper Veins
6	Lower Veins
7	Lymphatic and Hemic System
8	Eye
9	Ear, Nose, Sinus

Table 2-1 Medical and Surgical Body Systems (Continued)

Body Systems	
B	Respiratory System
C	Mouth and Throat
D	Gastrointestinal System
F	Hepatobiliary System and Pancreas
G	Endocrine System
H	Skin and Breast
J	Subcutaneous Tissue
K	Muscles
L	Tendons
M	Bursa, Ligaments, Fascia
N	Head and Facial Bones
P	Upper Bones
Q	Lower Bones
R	Upper Joints
S	Lower Joints
T	Urinary System
V	Female Reproductive System
W	Male Reproductive System
X	Anatomical Regions
Y	Upper Extremities
Z	Lower Extremities

Exercise one Identify the body system character that would be specified for the following surgical procedures:

1. _____ **Extracapsular cataract extraction**
2. _____ **Radical mastectomy**
3. _____ **Cystoplasty**
4. _____ **Radical prostatectomy**
5. _____ **Thyroidectomy**
6. _____ **Closure interventricular septum**

Third character

The third character indicates the root operation, which specifies the underlying objective of the procedure (e.g., bypass). There are 30 different root operations in the Medical and Surgical section. Each root operation is given a very precise definition (refer to chapter 1). The root operation characters are consistent through all body systems.

If the root operation cannot be determined from the documentation, and the necessary information cannot be obtained from the physician, then the root operation, repair, should be coded.

Fourth character

The fourth character indicates the specific part of the body system on which the procedure was performed (e.g., appendix). Body parts are not to be equated with organs. For example, the upper, middle, and lower esophagus are three body parts, and each can be excised or resected. The body part includes lesions, polyps, etc. found in/on the body part.

If the precise body part is not specified, use the generic body part that is specified in the body part character for the body system being coded.

Exercise two

1. **ICD-10-PCS divides the traditional cardiovascular system into _____ body systems.**
2. **The body part character assigned to the larynx is_____.**
3. **The body part character assigned to bone marrow sternum is_____.**
4. **The body part character assigned to left ulnar artery is_____.**
5. **(T) (F) Body parts are organs.**

The following is a list of the Gastrointestinal system body parts needed for exercise three.

Table 2-2 Gastrointestinal System Body Parts Body Part - Character 4

Body Parts	
0	Esophagus
1	Esophagus, Upper
2	Esophagus, Middle
3	Esophagus, Lower
4	Esophagogastric Junction
5	Upper Intestine
6	Stomach
7	Stomach, Pylorus
8	Small Intestine
9	Duodenum
A	Jejunum
B	Ileum
C	Ileocecal Valve
D	Large Intestine
F	Large Intestine, Right
G	Large Intestine, Left
H	Cecum
J	Appendix
K	Ascending Colon
L	Transverse Colon
M	Descending Colon
N	Sigmoid Colon
P	Rectum
Q	Anus
R	Anal Sphincter
S	Greater Omentum
T	Lesser Omentum
V	Mesentery
W	Peritoneum

Medical and surgical procedures performed on the Gastrointestinal System all begin with characters OD. The third character is B for excision (cutting out or off without replacement, a portion of a body part) or T for resection (cutting out or off, without replacement, all of a body part).

Exercise three Identify the first four characters of the procedure code for the following procedures:

1. _____ **Total gastrectomy**
2. _____ **Excisional biopsy, cecum**
3. _____ **Appendectomy**
4. _____ **Partial sigmoidectomy**
5. _____ **Resection of entire duodenum**

Fifth character

The fifth character indicates the approach used to perform the procedure, e.g., open. The approach characters are consistent through all body systems. There are 13 different approaches as shown in table 2-3. For internal body parts, the approach character specifies the technique used to reach the site of the operation. The approach is comprised of four components.

Access location

For operations performed on an internal body site, the access location specifies the *external* body site through which the *internal* site of the operation is reached. There are two possible access locations: through the skin or mucous membrane, or through an external orifice. The skin or mucous membrane can be cut through or punctured by instruments in order to reach the internal site of the operation. The internal site of an operation can also be reached through an external orifice. External orifices can be natural (e.g., mouth) or artificial (e.g., colostomy stoma).

Method

The method specifies how the external body site is entered. An open method involves cutting through the skin or lining of an orifice and any other intervening body layers necessary to expose the internal site of the operation. An instrumental method involves the entry of instrumentation through the access location in order to reach the internal site of the procedure. Instrumentation can be introduced by puncture or minor incision or through an external orifice. The puncture or minor incision used to introduce the instrumentation does not constitute an open approach since it does not expose the site of the procedure.

Type of instrumentation

Instrumentation may include the capability to visualize the site of the operation. For example, the instrumentation used to perform a sigmoidoscopy permits the internal site of the operation to be visualized while the instrumentation used to perform a needle biopsy of the liver does not. The term endoscopic is used to refer to instrumentation that permits a site to be visualized.

Route Instrumental methods may involve the passage of instrumentation into the lumen of a tubular body part in order to reach the internal site of the operation. An intraluminal route indicates that instrumentation was passed into the lumen of a tubular body part.

Operations performed directly on the skin or mucous membrane constitute an external site and therefore, the approach is none (e.g., skin excision). Procedures performed indirectly by the application of external force also constitute an external site and their approach is none (e.g., closed repair of fracture).

If the full detail of the type of approach cannot be determined, then the most basic open, percutaneous, or transorifice approach should be coded.

Exercise four Provide the information requested about approaches:

1. **The two possible access locations are:** _____.
2. **The term used to refer to instrumentation that permits a site to be visualized is:** _____.
3. **The route that indicates that instrumentation was passed into the lumen of a tubular body part is:** _____.
4. **The approach for operations performed directly on the skin is:** _____.
5. **(T/F) The approach characters are not consistent through all body parts.**

Table 2-3 gives definitions of each approach.

Table 2-3 Medical and Surgical Approach Definitions

0	Open	Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation.
1	Open Intraluminal	Cutting through the skin or mucous membrane and any other body layers necessary to expose a tubular body part, and introduction of instrumentation into the lumen to reach the site of the operation.
2	Open Intraluminal Endoscopic	Cutting through the skin or mucous membrane and any other body layers necessary to expose a tubular body part, and introduction of instrumentation into the lumen to reach and visualize the site of the operation.
3	Percutaneous	Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach the site of the operation.

Table 2-3 Medical and Surgical Approach Definitions (Continued)

4	Percutaneous Endoscopic	Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach and visualize the site of the operation.
5	Percutaneous Intraluminal	Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach a tubular body part, and introduction of instrumentation into the lumen to reach the site of the operation.
6	Percutaneous Intraluminal Endoscopic	Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach a tubular body part, and introduction of instrumentation into the lumen to reach and visualize the site of the operation.
7	Transorifice Intraluminal	Entry of instrumentation through a natural or artificial external orifice into the lumen of the connected tubular body part to reach the site of the operation.
8	Transorifice Intraluminal Endoscopic	Entry of instrumentation through a natural or artificial external orifice into the lumen of the connected tubular body part to reach and visualize the site of the operation.
9	Open With Cardio-pulmonary Bypass	Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation with the use of cardiopulmonary bypass during a portion of the procedure.
B	Open With Inflow Occlusion	Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation with the use of inflow occlusion during a portion of the procedure.
C	Open With Temporary Shunt	Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation with the use of a temporary shunt during a portion of the procedure.
Z	None	Procedures performed directly on the skin or mucous membrane and procedures performed indirectly by the application of external force through the skin or mucous membrane.

Exercise five Place the character for the approach term before its definition:

Approach:

- | | |
|-------------------------------------|------------------------------------|
| 0 Open | 9 Open with cardiopulmonary |
| 1 Open intraluminal | bypass |
| 3 Percutaneous | C Open with temporary shunt |
| 4 Percutaneous
Endoscopic | |

Definition:

1. _____ Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach the site of the operation
2. _____ Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation with the use of cardiopulmonary bypass during a portion of the procedure
3. _____ Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation
4. _____ Cutting through the skin or mucous membrane and any other body layers necessary to expose the site of the operation with the use of a temporary shunt during a portion of the procedure
5. _____ Cutting through the skin or mucous membrane and any other body layers necessary to expose a tubular body part, and introduction of instrumentation into the lumen to reach the site of the operation
6. _____ Entry, by puncture or minor incision, of instrumentation through the skin or mucous membrane and any other body layers necessary to reach and visualize the site of the operation

Table 2-4 summarizes the components of each different medical and surgical approach along with an example of each approach. For cardiovascular procedures there are three additional open approaches which specify whether cardiopulmonary bypass, inflow occlusion or a temporary shunt was used during the procedure.

Table 2-4 Components of the Medical and Surgical Approach

Access Location	Method	Type of Instrumentation	Route	Approach	Example
Skin or Mucous Membrane	Open	N/A	N/A	Open	Abdominal Hysterectomy
Skin or Mucous Membrane	Open Instrumental	Without Visualization	Intraluminal	Open Intraluminal	Common Duct Exploration
Skin or Mucous Membrane	Open Instrumental	With Visualization	Intraluminal	Open Intraluminal Endoscopic	Open Colonoscopy with Polypectomy
Skin or Mucous Membrane	Instrumental	Without Visualization	N/A	Percutaneous	Needle Biopsy of Liver
Skin or Mucous Membrane	Instrumental	With Visualization	N/A	Percutaneous Endoscopic	Arthroscopy
Skin or Mucous Membrane	Instrumental	Without Visualization	Intraluminal	Percutaneous Intraluminal	Femoral Artery Embolectomy
Skin or Mucous Membrane	Instrumental	With Visualization	Intraluminal	Percutaneous Intraluminal Endoscopic	Percutaneous Gastroscopy
Orifice	Instrumental	Without Visualization	Intraluminal	Transorifice Intraluminal	Insert Endotracheal Tube
Orifice	Instrumental	With Visualization	Intraluminal	Transorifice Intraluminal Endoscopic	Sigmoidoscopy
Skin or Mucous Membrane	N/A	N/A	N/A	None	Closed Fracture Reduction

Exercise six Place the character of the typical approach before the appropriate example:

0 Open	9 Open with cardiopulmonary
1 Open intraluminal	bypass
3 Percutaneous	Z None
4 Percutaneous	
Endoscopic	

1. ____ Needle biopsy of kidney
2. ____ Mitral valvuloplasty
3. ____ Total thyroidectomy
4. ____ Common duct exploration
5. ____ Laparoscopy
6. ____ Closed reduction, left humeral fracture

Sixth character

The sixth character indicates whether any device was used in the procedure (e.g., synthetic substitute). This character is used to specify only devices that remain after the procedure is completed. There are four general types of devices:

- ◆ Biological or synthetic material that takes the place of all or a portion of a body part (e.g., skin grafts and joint prosthesis),
- ◆ Biological or synthetic material that assists or prevents a physiological function (e.g., IUD),
- ◆ Therapeutic material that is not absorbed by, eliminated by, or incorporated into a body part (e.g., radioactive implant). Therapeutic materials that are considered devices can always be removed,
- ◆ Mechanical or electronic appliances used to assist, monitor, take the place of, or prevent a physiological function (e.g., diaphragmatic pacemaker, orthopedic pins).

Devices can be used with the root operations alteration, bypass, change, creation, dilation, drainage, insertion, occlusion, reattachment, removal, repair, replacement, restriction, and revision. If the objective of a procedure is to put in a device, the root operation is

insertion. If a device is put in as part of a procedure that has an underlying objective other than insertion of the device, the root operation describing the underlying objective of the procedure is used with the device specified as the sixth character. For example, the root operation in a bone repair that includes putting in a fixative device is repair. Materials such as clips, ligatures and sutures are not specified in the device character.

Seventh character

The seventh character is a qualifier that has a unique meaning for individual procedures. Examples of qualifiers include:

- ◆ Type of transplant
- ◆ Second site for a transplant
- ◆ Second site for a bypass
- ◆ Original procedure in a revision
- ◆ Type of fluid taken out during a drainage

The device and qualifier characters are consistent in individual body systems and to the extent possible across body systems. For example, 0 = allogeneic, 1 = syngeneic, and 2 = zooplasmic appear as qualifiers describing transplants in multiple body systems. Additionally, the original procedure is a qualifier for the root operation, revision, in all body systems.

Exercise seven Circle the appropriate response.

1. (T) (F) The qualifier character 1 indicates a transplant is from an individual or tissue having an identical genotype.
2. (T) (F) Allogeneic may be specified in character 7 for a transplant procedure.
3. (T) (F) The seventh character has a standard meaning for all procedures.
4. (T) (F) Bypass may be specified in character 7 for revision of a gastrojejunostomy.

Guidelines for coding with ICD-10-PCS

- | | |
|----------|--|
| | <ol style="list-style-type: none">1. The objective of the procedure is the primary determinant in identifying the root operation to be coded. |
| Examples | <p>Cataract extraction with concomitant lens insertion is coded as replacement. Extraction of cataract without lens replacement is coded as extraction.</p> |
| | <ol style="list-style-type: none">2. Integral components of operations are not coded separately such as excision or resection performed as part of a replacement or repair operation.3. Drainage tubes inserted as part of another procedure are included in the primary procedure and are not coded as drainage. Routine drainage of operative site/wound is not coded. A drainage tube is not coded as a device.4. Drainage operations on the upper and lower arteries are performed only to obtain arterial blood samples.5. Combination procedures that have distinctly separate objectives are coded separately. |
| Examples | <p>Salpingo-oophorectomy is coded as salpingectomy and oophorectomy. Cholecystectomy with common duct exploration is coded as a resection of gallbladder and inspection of common duct or extraction if the stone is removed. Excision or resection of intestine with opening to skin is coded as excision or resection and bypass.</p> <ol style="list-style-type: none">6. A biopsy is coded to excision of body part with the qualifier, diagnostic.7. Excisional debridement is coded to excision and includes concomitant irrigation. Non-excisional debridement is coded to extraction.8. Harvesting of an autologous graft is coded as an excision or resection if the graft material is taken from a site other than the site of the root operation.9. All bypass operations are described in the direction of flow of the contents of the body part (body part to qualifier) except bypasses of the coronary arteries. <p>Example: ventriculoperitoneal bypass - The ventricle is the body part and the peritoneum is the qualifier.</p> |

10. Destruction is coded when an agent is introduced directly in/on the body part to cause destruction, such as chemonucleolysis or sclerotherapy. Administration is coded if an agent introduced into the blood stream acts on a remote body part (thrombolysis).

11. Upper and Lower Extremities identify the body parts for amputation operations. Root operation is detachment. The qualifiers, high, mid and low, specify the level at which the body part is detached.

Complete: The body part is detached at the joint

High: The body part is detached at the upper proximal portion

Mid: The body part is detached at the middle portion

Low: The body part is detached at the lower (distal) portion

Examples Code Below the Knee Amputation as Detachment, Lower Leg. The qualifier, high, mid, or low, would be coded according to the level of detachment as indicated in the operative report.

12. Code an operation to the extent performed when a procedure is discontinued before the intended root operation is completed.

Examples Code excision if a biopsy was taken from a discontinued resection. Code inspection if only exploration is performed.

13. If more than one body layer/body system is involved in a procedure, such as debridement of skin, subcutaneous tissue, and muscle, code to the Anatomical Regions body system.

14. Use the generic body part for endoscopy of tubular body parts such as esophagus for an esophagoscopy and upper intestine for an esophagogastroduodenoscopy.

15. The number of arteries listed as the body part does not represent the total number of bypasses performed for coronary artery bypasses. It represents only the number that can be described by one seven character operative code. Two separate codes are required to code a triple vessel bypass if two are performed with a graft and one is connected directly to the mammary artery without graft.

16. Devices are assigned codes only if the device remains after the procedure is completed. Equipment used to perform a procedure is not coded as a device.

17. Infusion of bone marrow taken from another individual is coded as "transplantation." Autologous bone marrow infusion is coded in the Administration section as "transfusion of bone marrow, autologous."

Exercise eight

1. The body part character for a colonoscopy is _____.
2. A colostomy is coded as a _____ root operation.
3. The root operation character for excisional debridement is _____.
4. Amputation of an extremity is coded as a _____ root operation.
5. A total laryngectomy with tracheostomy requires root operation codes for _____ and _____.

In chapter 3, the characters applicable to Medical and Surgical section procedures are described. Coding rules for applying Medical and Surgical section codes are also presented and applied in practical exercises.

Chapter 3

Medical and Surgical - Body Systems

This chapter outlines the 31 body systems of the Medical and Surgical section. The 30 root operations for this section are described in detail with appropriate examples. Extensive practice in assigning seven character ICD-10-PCS codes to operative reports is also provided.

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Medical and Surgical - Body Systems

ICD-10-PCS CODES FROM THE MEDICAL AND SURGICAL section will be reported on the majority of inpatient claims. This coded data will also be used for research, quality assurance, and teaching purposes.

To increase your familiarity with the Medical and Surgical section codes, a summary description of the codes included in each body system is provided. One root operation is emphasized in each body system although numerous root operations are performed in most body systems.

Central Nervous System

No alteration, creation, dilation, fusion, occlusion, reattachment, restriction, or transplantation operations are identified for the central nervous system. Body part characters are assigned to the meninges, epidural, subdural, and subarachnoid spaces, the ventricles, specific parts of the brain and spinal cord and various central nerves. Qualifiers include bypass sites, the terms "diagnostic" and stereotactic and cranial nerve sites for transfer operations. Z for none is used frequently for the device and qualifier characters.

Bypass operations are frequently performed on the central nervous system.

<i>Root operation</i>	Bypass
<i>Definition</i>	Altering the route of passage of the contents of a tubular body part
<i>Explanation</i>	Rerouting contents around an area of a body part to another distal (down stream) area in the normal route; rerouting the contents to another different but similar route and body part; or to an abnormal route and another dissimilar body part.
<i>Encompasses</i>	Diversion, reroute, shunt
<i>Examples</i>	Gastrojejunal bypass Coronary artery bypass

Exercise one

1. A diversion procedure is included in the root operation_____.
2. The body part character for the hypothalamus is_____.
3. The first four characters of the ICD-10-PCS code for division of vagus nerve are_____.
4. The seven character ICD-10-PCS code for revision of a ventriculo-peritoneal shunt with device is_____.
5. The seven character ICD-10-PCS code for a lumbar puncture is_____.

Peripheral Nervous System

In the peripheral nervous system body part characters are assigned to some specific nerves such as the median and radial nerves but other characters are less specific (e.g., lumbar nerve or lower extremity nerve, other). Qualifiers include various specific nerves for transfer operations and "diagnostic" for excision operations.

Release procedures are frequently performed on the peripheral nervous system.

<i>Root operation</i>	Release
<i>Definition</i>	Freeing a body part
<i>Explanation</i>	Eliminating abnormal compression or restraint by force or sharp or blunt dissection. Some of the restraining tissue may be taken out but none of the body part itself is taken out.
<i>Encompasses</i>	Decompression, free, lysis, mobilization, relaxation, relief, section, take down
<i>Examples</i>	Lyse peritoneal adhesions Free median nerve

Exercise two

1. **Decompression or lysis procedures are included in the root operation _____.**
2. **The body part code for the sciatic nerve is _____.**
3. **The first four characters of the ICD-10-PCS code for an open exploration of the ulnar nerve are _____.**
4. **The seven character ICD-10-PCS code for open release of right kidney is _____.**
5. **The seven character ICD-10-PCS code for laparoscopic lysis of peritoneal adhesions is _____.**

Exercise three

Assign the correct ICD-10-PCS code(s) to the following operative reports involving surgery on the central and peripheral nervous systems.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Left parietal tumor

POSTOPERATIVE DIAGNOSIS: Giant cell lymphoma

OPERATION: Left parietal craniotomy and excision of tumor

ANESTHESIA General anesthesia

INDICATIONS:

This is a 71-year-old female with a history of lymphoma that presented with right-sided leg weakness. A computerized tomography scan of the head and an MRI showed the presence of an enhancing lesion in the left parietal area medially. The indications, risk and potential complications of the surgery were explained to the patient who understood and agreed to it.

PROCEDURE:

The patient was taken down to the computerized tomography scanner where localization of the lesion on the scalp was performed using the computerized tomography scan. The patient was then taken to the operating room. After induction of general anesthesia endotracheal intubation was performed and the Foley catheter was inserted. The patient was then positioned supine with her head supported in a Sigitra head holder, not facing straight up. The operative site was shaved, prepped, and draped in the usual sterile fashion. The skin was marked and the scalp flap designed in a horse-shoe fashion reaching the midline. The skin incision was infiltrated with a Xylocaine one percent with Epinephrine 1:100,000. The skin was then incised. The Raney clips were applied and the skin flap turned hinged laterally. The craniotomy was then performed using the craniotome for the burr holes and the Midas-Rex, B-1 bit to turn the flap after dissecting the dura with a #3-0 Penfield. A free bone flap was performed in the posterior parietal area reaching the midline. The dural edges were tacked to the craniotomy margins. The ultrasound was then used to localize the tumor which was where it was predicated from the computerized tomography scan localization. The dura was then opened in a trap-door fashion hinged over the midline. Superficial veins identified on the angiogram as venous phase were then followed. The tumor could be seen mesially against the falx. The tumor has essentially almost reached the cortical surface and was visible. A plane was seen between the tumor and surrounding brain tissue. This plane was developed with the suction and the bipolar. The frozen section specimen was sent from the tumor and enucleation of the tumor was performed by developing the plane around it. Complete total removal of the tumor was then performed en bloc. The tumor bed was then checked and hemostasis insured with bipolar electrocoagulation. The frozen section result at that point was giant cell lymphoma. After hemostasis was found to be secured the tumor bed was lined with Surgicel strips and the dura closed with #4-0 Nurodon over a lyodural patch. The bone plate was repositioned and held closed with #2-0 Surgilon sutures. The scalp was then closed using #2-0 Dexon for the galea and staples for the skin. At the end of the procedure, the sponge, needle and instrument counts were all correct. The blood loss was about 50 cc's. No transfusion was given. A sterile head dressing was applied. The patient was extubated and taken back to the surgical intensive care unit in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Left frontal lesion

POSTOPERATIVE DIAGNOSIS: Left frontal lesion

OPERATION: Stereotactic biopsy of left frontal lesion

INDICATIONS FOR PROCEDURE:

The patient is a 33-year-old female who presented with neurologic deterioration, nausea, neck pain and headache. A CT and magnetic resonance scan revealed a left frontal cystic mass. It was recommended that the patient undergo stereotactic biopsy and aspiration. The risks and benefits of the procedure were explained to the patient and her family in detail, who requested the procedure be performed.

PROCEDURE:

The patient was first taken to the CT suite, where a stereotactic halo was placed on the patient's head with the four pin system using local anesthesia. The stereotactic CT was then performed and the patient was transported to the operating room. The patient was placed on the operating room table in the supine position. General endotracheal anesthesia was smoothly induced. The left frontal area was then clipped and shaved and the area was then prepped and draped in the usual sterile fashion. The stereotactic arm was then brought into the field and placed on the stereotactic ring. The localizing arm and the pointer were used to mark the left frontal area for skin incision. The area was then infused with 1% Lidocaine with epinephrine and a 2cm skin incision was created in the left frontal region. The self retaining retractor was placed and hemostasis was obtained. The pointer was again used to mark the spot on the skull to make the burr hole and a perforator was used to create a left frontal burr hole. The dura was coagulated and incised using a #15 bladed knife. The pia was then also coagulated and nicked with a #11 blade knife. The biopsy needle was then placed into the stereotactic localizing arm. The co-ordinates were dialed into the arm and the biopsy needle was advanced to the appropriate depth. Upon entering the lesion, 25cc of yellowish fluid was withdrawn from the cyst. The fluid was sent for cytology and bacteriology. The biopsy needle was then removed and the incision was irrigated with Bacitracin irrigation. The self retaining retractor was then removed and the incision was closed using #00 Dexon for the galea and staples for the skin. Estimated blood loss was 15cc. No transfusion was given. The sponge, needle and instrument counts were reported as correct at the end of the case. The patient was removed from the stereotactic halo ring. She was allowed to wake up and was extubated and taken to the neurosurgical intensive care unit in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Status post motor vehicle accident with transected left radial nerve

POSTOPERATIVE DIAGNOSIS: Status post motor vehicle accident with transected left radial nerve

OPERATION: Debridement of midportion of radial nerve with placement of interposition sural nerve graft times five

ANESTHESIA: General endotracheal

INDICATIONS:

The patient is a twenty-two year old female, status post car accident, with multiple injuries including left mid- to distal humeral fracture with transected radial nerve. Radial nerve not repaired primarily and now patient taken to OR for debridement and interposition of sural nerve graft.

PROCEDURE:

The patient was taken to the OR in stable condition, placed in the supine position and given general endotracheal anesthesia with good effect. The patient was repositioned with left arm and shoulder elevated along the left leg. Both arm and leg prepped and draped in the appropriate sterile fashion. Longitudinal incision was made over shoulder deltoid region with a #10 blade causing a scar from prior placement of the intramedullary humeral rod. The incision was carried down through all dermal layers, subcutaneous tissue, and fascial and muscle elements, until proximal pin was noted. This was removed without complications. The wound was closed in layered fashion with multiple interrupted 4-0 Vicryl subcutaneous sutures and a running 4-0 Prolene subcuticular stitch.

The two-team approach was utilized, one team harvesting the sural nerve of the left leg via an incision overlying the left saphenous vein. Incision was carried down through all skin layers with skin bridges positioned appropriately from the level of the lateral malleolus to just distal to the popliteal region. Incision was carried through all dermal layers, subcutaneous tissue and fascial elements until sural nerve identified. Sural nerve dissected freely from surrounding tissue. Once complete dissection was performed, the proximal and distal transection was performed. The sural nerve was placed in a saline soaked sponge. A tourniquet was utilized in dissection of this procedure. Tourniquet time was less than forty-five minutes.

Following release of tourniquet, hemostasis was controlled with appropriately placed electrocautery. The wound was closed in layered fashion with subcutaneous tissue closed with multiple interrupted 4-0 buried Vicryl sutures. The skin was reapproximated with multiple running 4-0 Prolene subcuticular sutures. Steri-Strips were applied to the wound.

During this time, the first team was identifying the transected ends of the radial nerve via lateral elbow mid- to proximal arm incision, which was utilized for prior repair of left humeral fracture. The incision was carried down through all skin layers, excising scar tissue. Hemostasis was controlled with properly placed electrocautery. Subcutaneous tissue, fascia and muscular fibers were next divided by a combination of sharp and blunt tip dissection until the tagged ends

of the radial nerve were identified. These were dissected proximally and distally until relatively normal appearing nerve was appreciated.

The neuroma of the proximal and distal ends was next transected, leaving a gap of approximately 6-7 cm. After this, the fascicular bundles were identified, which were casually divided into five proximally and five distally. The sural nerve was next taken into the operative field as was the operative microscope. The nerve was utilized for five nerve segments to five proximal segments, and five proximal and distal segments, and the anastomosis was performed with multiple interrupted 8-0 nylon epineural sutures.

Following completing union of the proximal and distal ends in an appropriate and adequate fashion, the wound was irrigated with copious amounts of saline solution and hemostasis was controlled with appropriately placed electrocautery following tourniquet removal. Tourniquet time was less than one hour, in the proximal procedure.

Following this, the wound was closed in layers with multiple interrupted 3-0 Vicryl subcutaneous, subdermal sutures, followed by running 3-0 Maxon subcuticular stitch. The Penrose drain was placed into the depths of the wound following skin closure. All wounds were next dressed with sterile dressings and Ace wraps. The left upper extremity was placed in an arm sling.

The patient was transferred to the recovery room in stable condition.

Complications: None
Estimated blood loss: 100 cc
Drains: Penrose in left upper arm
Condition: Stable

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Right trigeminal neuralgia

POSTOPERATIVE DIAGNOSIS: Right trigeminal neuralgia

OPERATION: Right radiofrequency coagulation of the trigeminal nerve

INDICATIONS:

This is an 84-year-old lady with intractable trigeminal neuralgia causing her considerable pain, inability to eat or speak who was referred for treatment of her affliction. Indications, potential complications, and risks were explained to the patient and family.

OPERATIVE PROCEDURE:

After the patient was positioned supine, intravenous sedation with Propofol was administered. Lateral skull x-ray fluoroscopy was set. The right cheek was infiltrated dermally with Xylocaine and a small nick in the skin 2.5cm lateral to the corner of the mouth was performed with an 18 gauge needle. The radiofrequency needle with 2mm exposed tip was then introduced using the known anatomical landmarks and under lateral fluoroscopy guidance into the foramen ovale. Confirmation of the placement of the needle was done by the patient grimacing to pain and by the lateral x-ray. The first treatment, 90 seconds in length was administered with the tip of the needle 3mm below the clival line at a temperature of 75 degrees C. The needle was then advanced further to the mid clival line and another treatment of similar strength and duration was also administered. Finally the third and last treatment was administered with the tip of the needle about 3cm above the line. The cerebrospinal fluid was noted. The needle was removed. The patient tolerated the procedure well and had adequate tearing and corneal sensation and had reduction if not cure of her pain by the end of the procedure. She was then sent back to the ICU for monitoring due to her cardiac condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Right carpal tunnel syndrome

POSTOPERATIVE DIAGNOSIS: Right carpal tunnel syndrome

OPERATION: Endoscopic carpal tunnel release

INDICATIONS:

The patient is a 41-year-old female with a history of rheumatoid arthritis and symptoms of right carpal tunnel syndrome.

OPERATIVE PROCEDURE:

On the date of the operation the patient was brought to the operating room and routine monitoring devices were applied by the anesthesia staff including blood pressure cuff, electrocardiographic leads and pulse oximeter. Axillary anesthesia was attempted by the anesthesia staff but secondary to failure of the block to take general endotracheal anesthesia was obtained by the anesthesia staff. The right arm was scrubbed with Betadine scrub, painted with Betadine paint and prepped and draped in the usual sterile fashion. A well-padded tourniquet was fixed to the right proximal arm but not inflated until after draping. After draping the right arm was exsanguinated with a combination of elevation and an Esmarch bandage placing a sponge in the palm. The tourniquet was inflated to 250. A transverse incision was made at the level of the proximal wrist crease between the palmaris longus and the flexor carpi ulnaris sharply through the skin with a knife and subcutaneous tissue was dissected by blunt spreading. Hemostasis was maintained throughout with Bovie bipolar electrocautery. The volar fascia was identified and a transverse incision was made sharply with a knife. This incision extended approximately the length of the skin incision. Prior to any incision being made the hook of the hamate had been identified and the target for all the instrumentation through the carpal tunnel was radial to the hook of the hamate and along the line of the fourth ray. The flat synovial retractor was pushed through the underneath of the transverse carpal ligament removing synovium from beneath the ligament. The first tissue dilator was inserted followed by a second tissue dilator followed by the endoscope. The endoscope was used to visualize the entire carpal tunnel and the fat pad distally. The fat pad was visualized distally and by palpation of the palm it seemed to bounce up and down. The blade of the endoscope, the 3-M Agee carpal tunnel endoscope, was elevated at the distal edge of the transverse carpal ligament and was pulled proximally, spreading and cutting through the transverse carpal ligament. After it had been pulled all the way to the skin edge of the incision, it was reinserted and it was visualized that virtually the entire transverse carpal ligament had been released and that configuration of the released end was a rectangle denoting that both the deep and the superficial fibers had been cut. There was a small area at the midline of the ligament where there was some remaining fibers in the superficial layer of the transverse carpal ligament. These were cut in a one-third pass with the 3-M endoscope with the blade elevated. Reinsertion once again showed that all fibers had been released. The tissue dilator was inserted through the skin after removal of the endoscope and used to palpate the released carpal ligament. The wound was then copiously irrigated with saline. The skin was then closed using a running subcuticular #4-0 nylon suture and secured with Steri-Strips covered with Owens gauze covered with four-by-four wrap with sterile Webril and placed in a volar plaster of Paris splint with some Webril padding, secured with Kling and Ace wrap. The splint placed the wrist in a neutral dorsiflexion and neutral ulnar radial deviation.

At the commencement of the operation prior to the inflation of the tourniquet the patient received one gram of Ancef intravenous piggyback. The patient also received 100mg of Hydrocortisone intravenous piggyback prior to the induction of the anesthesia and is to receive 50mg of Prednisone intravenous piggyback upon the arrival to the recovery room secondary to a daily dosage of ten mg of Prednisone for her rheumatoid arthritis. The sponge, needle and instrument counts were all correct at the end of the procedure. The fluid replacement was 900cc's. The tourniquet time was 38 minutes, the tourniquet being deflated at the fixation of the plaster of Paris splint. No specimens were sent to pathology. There were no complications. The patient was transferred to the post anesthesia recovery room awake and alert and breathing spontaneously in good condition.

ICD-10-PCS codes: _____

Heart and Great Vessels

For the heart and great vessels, body part characters are very specific identifying each heart chamber and valve, and individual characters are assigned to the right and left pulmonary arteries and veins. One coronary artery is assigned body part character = 0, two coronary arteries = 1, three coronary arteries = 2, and four or more coronary arteries = 3. Qualifiers identify bypass sites, type of transplant, or "diagnostic" excisions.

The heart and great vessels are one of the few systems where map procedures are performed.

<i>Root operation</i>	Map
<i>Definition</i>	Locating the route of passage of electrical impulses and/or locating functional areas in a body part
<i>Explanation</i>	Confined to the cardiac conduction mechanism and the central nervous system
<i>Encompasses</i>	Localization
<i>Examples</i>	Map cardiac conduction pathways Locate cortical areas

Exercise four

1. **Map operations encompass_____.**
2. **The body part code for the chordae tendineae is_____.**
3. **The first four characters of the ICD-10-PCS code for bypass of three coronary arteries are_____.**
4. **The ICD-10-PCS code for open revision of bypass of right coronary artery with venous autograft is _____.**
5. **The ICD-10-PCS code for map right cerebral hemisphere, open is_____.**

Upper Arteries

In the upper arteries, right and left arteries are assigned individual body part character codes. Qualifier codes include many vessels for bypass operations and "diagnostic" for excision operations.

Occasionally dilation procedures are performed on the upper arteries.

<i>Root operation</i>	Dilation
<i>Definition</i>	Expanding the orifice or the lumen of a tubular body part
<i>Explanation</i>	Stretching by pressure using intraluminal instrumentation
<i>Examples</i>	Dilate the trachea Dilate the anal sphincter

Exercise five

1. Dilation procedures involve the use of _____ instrumentation.
2. The body part character assigned to the right external carotid artery is _____.
3. The first four characters of the ICD-10-PCS code for repair of right brachial artery are _____.
4. The seven character ICD-10-PCS code for a left subclavian to left pulmonary artery bypass using Gore-Tex graft is _____.
5. The seven character ICD-10-PCS code for an open left internal carotid endarterectomy is _____.

Lower Arteries

Body part characters for the lower arteries are quite specific with separate characters for right and left arteries in many sites. Qualifiers include vessels for bypass operations and "diagnostic" for excision operations.

Some occlusion procedures are performed on the lower arteries.

<i>Root operation</i>	Occlusion
<i>Definition</i>	Completely closing the orifice or lumen of a tubular body part
<i>Explanation</i>	Can be accomplished intraluminally or extraluminally
<i>Encompasses</i>	Clamp, clip, embolization, interruption, ligation, stoppage, suture ligation
<i>Examples</i>	Ligate the vas deferens Fallopian tube ligation

Exercise six

1. A suture ligation procedure is included in the root operation _____.
2. An open approach with temporary shunt is assigned a fifth character of _____.
3. The seven character code for an open right femoral popliteal bypass with PTFE (plastic) graft is _____.
4. The seven character ICD-10-PCS code for an open bypass from abdominal aorta to mesenteric artery is _____.
5. The seven character ICD-10-PCS code for open repair of abdominal aorta with autograft is _____.

Upper Veins

The body part characters for the upper veins are very specific, distinguishing right and left upper veins. Qualifiers are used only to identify "diagnostic" for excision operations.

Occasionally restriction operations are performed on the upper veins.

<i>Root operation</i>	Restriction
<i>Definition</i>	Partially closing the orifice or lumen of a tubular body part
<i>Explanation</i>	Can be accomplished intraluminally or extraluminally
<i>Encompasses</i>	Band, cerclage, collapse, compression, pack, tamponade
<i>Examples</i>	Fundoplication Cervical cerclage

Exercise seven

1. The body part character code for the left internal jugular vein is_____.
2. The root operation for a cerclage of the cervix is _____.
3. The first five characters of the ICD-10-PCS code for percutaneous restriction of right basilic vein is_____.
4. The seven character ICD-10-PCS code for open removal of thrombus from the right external jugular vein is_____.
5. The seven character ICD-10-PCS code for open repair of the right axillary vein is_____.

Lower Veins

Although a few body sites of the lower veins are identified only by site, most body part characters are assigned to specific veins. Several veins are identified as qualifiers for bypass operations. The qualifier "diagnostic" is applied to excision operations.

A few destruction operations are performed on the lower veins.

<i>Root operation</i>	Destruction
<i>Definition</i>	Eradicating all or a portion of a body part
<i>Explanation</i>	The actual physical destruction of all or a portion of a body part by the direct use of energy, force or a destructive agent. There is no tissue taken out.
<i>Encompasses</i>	Ablation, cauterization, coagulation, crush, electrocoagulation, fulguration, mash, obliteration
<i>Examples</i>	Fulgurate a rectal polyp Crush a fallopian tube

Exercise eight

1. The root operation for sclerosing varicose veins is_____.
2. The body part character for the portal vein is_____.
3. The first four characters of the ICD-10-PCS code for bypass from inferior vena cava to inferior mesenteric vein are_____.
4. The seven character ICD-10-PCS code for open repair of the inferior vena cava is_____.
5. The seven character ICD-10-PCS codes for open ligation and intraluminal stripping of the left greater and lesser saphenous veins are_____.

Exercise nine

Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the heart and great vessels, arteries and veins.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Breast cancer

POSTOPERATIVE DIAGNOSIS: Breast cancer

OPERATION: Port-a-cath placement in the right subclavian vein

PROCEDURE:

The right chest and neck were propped and draped in the usual manner and 10 cc's of 1% Lidocaine were injected in the right infraclavicular area. The right subclavian vein was then punctured and a wire was passed through the needle into the superior vena cava. This was documented by fluoroscopy. Introducer kit was introduced into the subclavian vein and the port-a-cath was placed through the introducer and by fluoroscopy was placed down to the superior vena cava. The pocket was then made over the right pectoralis major muscle, superior to the breast and the port-a-cath receptacle was placed into this pocket and tacked down with #0 Prolene sutures. The catheter was then tunneled through to this receptacle. Hemostasis was achieved and the subcutaneous tissue was closed with #3-0 Dexon. The skin was closed with #4-0 nylon. A chest x-ray performed after placement of the port-a-cath shows the port-a-cath in proper position. There was also no pneumothorax. The port-a-cath was flushed with 20cc's of heparinized saline.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Clotted right forearm AV graft

POSTOPERATIVE DIAGNOSIS: Clotted right forearm AV graft

OPERATION: De-clotting right forearm AV graft

ANESTHESIA: Local

INDICATIONS:

The patient is a 72-year-old female presenting to neurosurgery one week before procedure with a clotted AV graft which was the access for chronic hemodialysis for the patient. She was taken to the operating room but at the induction of anesthesia the patient had a cardiac arrest and was resuscitated and taken to the MICU. The cause of the cardiac arrest was found to be a third degree AV block, sick sinus syndrome. The patient had a pacemaker placed and her condition improved and she was taken back to the operating room for the planned procedure of de-clotting of the graft.

PROCEDURE:

The patient was placed in the supine position on the operating room table. The right upper extremity was properly prepped and draped. Local anesthesia was used to explore the graft. A transverse incision in the previous site of the incision, 1 cm below the elbow crease, was performed. The venous limb of the graft was dissected free up to the venous anastomosis. A small incision on the graft was performed. Then a #3 Fogerty catheter was passed on the venous side. The cephalic vein which was that for the anastomosis was found obstructed. A collateral branch going deep in the arm was found patent. The occlusion of the cephalic vein was not on the anastomotic site but was about 4cms proximal to the anastomosis. After the embolectomy a good back flow from the venous site was obtained. Then the embolectomy was performed throughout the limb on the arterial side. A large amount of clots were extracted. A good arterial flow was obtained. At this point the procedure was concluded closing the incision on the graft with 6-0 prolene running suture. The patient was made aware of the possibility of recurrent clotting and the plan to perform in that situation a new graft in the right upper arm which is the only site available for further graft on this patient. The graft is possibly an early failure because of the poor venous overflow. The patient had an estimated blood loss of 60cc's; received 90cc's of intravenous fluids. She tolerated the procedure well and was taken back to the recovery room in good condition after the skin was closed with running 4-0 Dexon subcuticular suture and steri-strips.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Triple vessel and left main coronary artery disease with good left ventricular function

POSTOPERATIVE DIAGNOSIS: Triple vessel and left main coronary artery disease with good left ventricular function

OPERATION: Double coronary artery bypass graft with saphenous vein

INDICATIONS:

The patient is a 70-year-old woman with a known left main stenosis and an old inferior wall infarct with complete occlusion of her right coronary artery. The patient was a Jehovah's Witness, and was somewhat anemic when first evaluated. Obviously coronary artery surgery was indicated, and the patient was placed on Erythropoietin for approximately one month to prepare her for surgery. She would accept blood products under no circumstances. Her hematocrit was brought up to 40 on Erythropoietin, aspirin was stopped, and she was scheduled for elective coronary surgery. She was fully aware of the risks and benefits. Her Parsonette's score was 11, and as mentioned previously, she would accept her own blood, but no other autologous products.

PROCEDURE:

After routine preparation and draping, saphenous vein was removed from the right calf, and the incisions were closed with absorbable suture. Meticulous hemostasis was maintained.

A mid-sternotomy incision was made. The pericardium was retracted. Heparin was given, and the patient was placed on bypass using routine cannulation technique. Of note, use of the mammary artery was specifically avoided because of the fact that she would not accept transfusions.

The aorta was cross clamped. A large dose of cold antegrade cardioplegia was delivered, and the operation was performed. First, the left anterior descending artery was opened in its mid-portion. It was almost 2mm in diameter, and it was grafted with a 4mm segment of saphenous vein with no side branches. The proximal anastomosis was immediately done low down on the left side of the aorta using open technique, again to facilitate hemostasis. One more dose of cardioplegia was administered. The heart was elevated and rotated to the right side, and the obtuse marginal was opened and found to be more diseased than expected, and just 1.5mm in diameter. However, a nice end-to-side anastomosis was fashioned with a 3.5mm segment of saphenous vein.

The cross clamp was removed, and while the patient was being warmed, the proximal anastomosis for the circumflex was done directly anteriorly using a partial occlusion clamp. It was necessary to reinforce the suture line in a few spots with the pericardial pledgeted sutures. Again, great care was taken to make sure that there was good hemostasis throughout and all the patient's blood was recycled through the heart/lung machine during the procedure. Pacing wires were placed on the right atrium and right ventricle, and the patient was separated from cardiopulmonary bypass with no difficulty whatsoever. When the chest was perfectly dry, the incision was closed over two large Argyle chest tubes, one in the right pleural space which had been previously opened, and a large, Silastic flat tube in the mediastinum. The sternum was reapproximated with

multiple Mersilene's, the upper midline and presternal fascia with heavy Dexon, and the rest of the chest with absorbable suture.

The tubes were placed on suction, and the patient was prepared for the transfer to the Intensive Care Unit. Of note, flow in the bypass graft was about 80cc in the left anterior descending artery and 30cc in the obtuse marginal.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PROCEDURE:

Left heart catheterization with left ventricular coronary angiography and angioplasty of the left anterior descending coronary artery via right femoral artery percutaneously.

CATH REPORT:

The patient was premedicated with Vistaril 50 mg p.o. He was transported to the Cardiac Catheterization Laboratory where he was prepped and draped in the standard fashion. Under 1% Lidocaine local anesthesia, the right femoral artery was entered by the Seldinger technique and a #7 French sheath was placed. Subsequently, a left and right Judkins catheter was advanced to the ascending aorta where the left and right coronary ostia were engaged and coronary angiography was accomplished in multiple projections. In between injections, electrocardiogram and blood pressure were allowed to stabilize. The catheter was then removed and exchanged for a 6 French pigtail which was advanced to the left ventricle and left ventricular angiography was accomplished using biplane. After pullback was obtained, the catheter was removed, subsequently a Judkins left guiding catheter was advanced to the left coronary ostium and using an .014 Entree wire and a 2.5 x 30mm Panther balloon, it was easily placed across the lesion in the left anterior descending. The balloon was inflated times two for five minutes for up to 8 to 9 atmospheres. Repeat angiography demonstrated an excellent result. The patient did have significant chest discomfort with inflation but it decreased prior to leaving the Cath Lab. He was maintained on a Heparin drip and a Nitroglycerin drip and received 10,000 units of Heparin prior to the procedure with monitoring of the ACT post procedure. The patient returned to the Intensive Care Unit in good condition on a Heparin and Nitro drip.

IMPRESSION:

Left ventricular wall motion abnormality, mild, with mild anterolateral hypokinesis with the overall estimated ejection fraction of approximately 50%.

Left ventricular hemodynamic dysfunction with an end-to-end diastolic pressure of 20 mm of mercury at rest.

Coronary artery disease, severe, with 70% of narrowing in the left anterior descending coronary artery just distal to the diagonal branch. This vessel was successfully dilated with less than 20% stenosis remaining post procedure.

The circumflex coronary artery has an area of approximately 50-60% narrowing in its mid portion.

The right coronary artery is free of significant obstruction.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Patent ductus arteriosus

POSTOPERATIVE DIAGNOSIS: Patent ductus arteriosus

OPERATION: Division of patent ductus arteriosus

INDICATIONS FOR PROCEDURE:

This is a 2-year-old child with a moderate to large size patent ductus arteriosus, with a left to right shunt and mildly enlarged heart. Because of the moderate to large size patent ductus arteriosus with a slightly large heart, and left to the right shunt, it is felt that the patient should undergo surgery at this time.

FINDINGS AT THE TIME OF SURGERY:

The patient was found to have a moderate to large size patent ductus arteriosus which was approximately 5-6 m in size. It was divided and oversewn.

PROCEDURE:

The patient was taken to the operating room and placed in the supine position and standard anesthetic induction and endotracheal intubation were performed without difficulty. Percutaneous line placement was carried out and the patient was turned on her right side with the left chest up. The left chest was prepped and draped in the usual sterile fashion. A left posterior thoractomy incision was made. The incision was carried down, incising only a little bit of the latissimus muscle, preserving most of it using muscle sparing technique posterior to the latissimus. The chest was entered through the fourth interspace. The lung was retracted inferiorly and the aorta came in to view. Starting laterally, the pleura was incised off the aorta and swept medially to avoid any injury to any underlying structures. The vagus, phrenic and recurrent laryngeal nerves were identified and swept free of the dissection, to avoid any injury to these structures.

The aortic arch as well as the patent ductus arteriosus was visually identified. Using careful sharp and blunt dissection, the ductus was dissected out. This was done once again, assuring no damage to the recurrent laryngeal nerve. Two clamps were placed, one on the pulmonary side and one on the aortic side, occluding the ductus arteriosus.

The duct was partially divided and over sewn with #6-0 Prolene sutures. Following placement of the sutures, the duct was divided completely and this was oversewn in two layers with #6-0 Prolene sutures. The clamps were then removed and no bleeding was seen. The duct was completely divided and each side had been oversewn nicely. The pleura was then re-approximated using running Prolene suture. A single chest tube was placed through a separate stab wound. The ribs were re-approximated using #10 Vicryl suture. The remaining layers were closed with running Dexon suture and the skin was closed with a running Dexon subcuticular stitch.

The sponge, needle and instrument counts were reported as correct. The patient tolerated the procedure well and was taken to the pediatric intensive care unit in stable condition. Estimated blood loss for the procedure was 2-3 cc.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Arterial insufficiency of the legs

POSTOPERATIVE DIAGNOSIS: Arterial insufficiency of the legs

OPERATION: Aorto bifemoral bypass graft

PROCEDURE:

The patient was prepped and draped and groin incisions were opened and the patient was noted to have moderate amount of anomalies of her arterial system compatible with arteriogram. The profunda on the left was an extremely deep vessel distal to the groin. The right showed a very small vessel posteriorly compatible with that on the Xray. The common femoral vein and its branches were isolated and either Teflon tapes or rubber loops were placed around the vessels. At the completion of this the abdomen was opened and explored. The patient was found to have an extremely hard distal aorta and iliacs, evidence of radiation changes in the abdominal wall and some of the small bowel. The remainder of the abdominal exploration was unremarkable.

After the abdomen was explored a Balfour retractor and an iron intern were put in place. The aorta and iliacs were mobilized. Bleeding points were controlled with electrocoagulation and Liga clips. The tapes were placed around the vessel. The vessel measured and the aorta was found to be a 12mm vessel. A 12 x 7 bifurcated microvelour graft was then preclotted with the patient's own blood.

An end-to-end anastomosis was made on the aorta and the graft using a running suture of 2-0 Prolene. The limbs were taken down through tunnels noting that the ureters were anterior and at this point an end-to-side anastomosis was made between the graft and the femoral arteries with running suture of 4-0 Prolene. The inguinal incisions were closed with running sutures of 2-0 Vicryl and steel staples in the skin. The abdomen was reperitonealized posteriorly with 2-0 Vicryl, anteriorly with 0 Vicryl, and then the fascia was closed with interrupted sutures of 0 Vicryl. The subcutaneous tissue was closed with running suture of 3-0 Vicryl and the skin with steel staples. A sterile dressing was applied. The patient tolerated the procedure well and returned to the Recovery Room in adequate condition.

Before the surgical incision was made using the subclavian stick a Swan-Ganz catheter was inserted through the right subclavian vein and guided into the right ventricle. This was sutured in place with 2-0 silk.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Symptomatic critical stenosis, left internal carotid artery

POSTOPERATIVE DIAGNOSIS: Symptomatic critical stenosis, left internal carotid artery

OPERATION: Left carotid endarterectomy with patch angioplasty

PROCEDURE:

After satisfactory general anesthesia was induced, the patient was positioned supine on the operating table with his head turned towards the right side. The left neck was prepared with Betadine and draped with sterile linen.

An incision was made along the anterior border of the sternomastoid muscle and deepened through the platysmal layer. Sternomastoid muscle was mobilized off the carotid sheath and held in place with self-retaining retractors. The carotid sheath was entered along the anterior border of the jugular vein. The common facial vein was identified and divided between double ligature. The common carotid, carotid bifurcation, internal and external carotid arteries were mobilized. The patient was given 5000 units of heparin intravenously, and the internal, external and common carotid arteries were clamped. During the period of clamping, it was noted that the patient was undergoing slowing of the EEG on the appropriate side and the decision was reinforced to shunt.

A longitudinal arteriotomy was made in the common carotid artery and through a very occlusive plaque that had evidence of recent intraplaque hemorrhage. We entered the lumen distal to the plaque and then inserted a Javid shunt in the internal carotid artery. This was allowed to back bleed and filled the common carotid artery, displacing any air bubbles. We then clamped the shunt and inserted the shunt in the common carotid artery, holding both ends with Rumel tourniquets. The clamp was slowly released, and there was no evidence of any debris or air bubbles. Once flow was reestablished, EEG normalized.

A bifurcation endarterectomy was then performed with clean endpoints in the internal, external and common carotid arteries. The endomectomized surface was then copiously irrigated with heparinized saline and small bits of medial debris were removed. The arteriotomy was closed with a patch angioplasty using a Hemashield patch that was cut to length and appropriately beveled at each end. This was sutured in place with #6-0 Prolene in quadrants. Prior to completion of the final quadrant, the shunt was removed and the vessels were back bled and flushed. The closure was completed and blood flow was begun first to the external and then to the internal carotid artery. Excellent pulsation was noted in the internal carotid artery.

A completion angiogram was then obtained which demonstrated clean technical result with normal intracranial filling.

The wound was then irrigated with 1% Kanamycin solution. After meticulous hemostasis was achieved, a 7mm Jackson-Pratt drain was placed and brought out through a separate stab wound. The platysmal layer was closed with a running suture of #3-0 Maxon, and the skin was closed with a running subcuticular suture of #4-0 Dexon. An Op-Site dressing was applied. The patient was then returned to the recovery room in good condition. Sponge and needle counts were correct.

Estimated blood loss: negligible.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: Bilateral carotid dissection with cerebral ischemia

POSTOPERATIVE DIAGNOSIS: Bilateral carotid dissection with cerebral ischemia

OPERATION: Right superficial temporal artery to right middle cerebral artery bypass

ANESTHESIA: General

HISTORY:

The patient is a 45-year-old female who presented with the new onset of severe headache and a work-up which revealed bilateral carotid dissection. The patient was transferred here from an outside institution where repeat cerebral angiography revealed bilateral carotid dissection and multiple pseudoaneurysms of the right cervical internal carotid artery. Functional studies, including a Diamox challenge SPECT scan, were performed and showed hypoxia after a Diamox challenge. It was recommended that the patient undergo extracranial to intracranial bypass surgery for the re-vascularization. The risks and benefits of the procedure were explained to the patient in detail and she requested that the procedure be performed.

The patient was brought to the operating room where she was placed on the operating table in the supine position. General anesthesia was smoothly induced. A central venous line and arterial line were inserted and a Foley catheter was placed. The patient was then placed in the four pin Sugita head holder with her head turned approximately 80 degrees to the left. The right frontal and temporal area was clipped and then shaved. It was then sterilely prepped. The Doppler was then used to identify the superficial temporal artery at the zygoma. It was then mapped, using a 25 gauge needle to scratch the skin, marking the artery beneath it in both the frontal and posterior branch of the superficial temporal artery. After this was performed, the area was again sterilely prepped and draped in the usual fashion and the dissection was begun using a 15-blade knife over the area near the bifurcation of the superficial temporal artery. The skin was opened and the Shaw blade was then used to dissect the tissue down to the galea and identify the superficial temporal artery. Blunt dissection using a hemostat was then used to open the skin above and below this area, exposing approximately 10 cm of the superficial temporal artery. The artery was then mobilized using the Shaw knife while it was left connected proximally and distally. After the artery was mobilized it was wrapped with cottonoids with papaverine and moved to the posterior part of the incision. The monopolar unit was then used to elevate and ligate the temporalis muscle and the skin incision was retracted anteriorly to the keyhole and posteriorly to allow for craniotomy. The Sugita head frame was used with the spring hook retractor system to retract the skin and muscle flaps anteriorly and posteriorly. The Hall air drill was then used with perforator to create a burr hole in the keyhole and in the inferior temporal region. The craniotome was then used to perform a craniotomy and the bone flap was elevated. The dural edges were tacked to prevent an epidural hematoma. The pterion was rongeuired using a gooseneck Leksell rongeur and the dura was then opened in a U-shaped fashion and Sylvian fissure was identified and it was opened using an arachnoid knife and microdissection.

The operating microscope was brought into the field and the middle cerebral artery was identified. The main trunk and bifurcation were identified and this

was followed out to an approximately 3 to 4 mm vessel going toward the temporal lobe. This vessel was then prepared for bypass by placing a small piece of latex underneath it. The superficial temporal artery was then ligated at its distal end and the vessel was prepared for anastomosis by removing the fascia and soft tissue around the distal 5cm of the bypass vessel. The distal part of the vessel was then cut in an oblique fashion. The middle cerebral artery temporal branch was then prepared. A temporary clip was placed across the proximal end of the superficial temporal artery and the artery was irrigated with heparinized saline. A second temporary clip was then placed across the proximal temporal branch of the middle cerebral artery and then distally beyond the area of bypass. The artery was then opened using microscissors and a 3 to 4 mm incision was made in the artery. The anastomosis was then performed using a 10-0 nylon suture. The first stitch was placed at the point of the superficial temporal artery and then a second stitch was placed at the opposite end of the anastomosis. Next five stitches were placed on each side of the anastomosis. A stent had been placed into the middle cerebral artery prior to the anastomosis. This was removed before placing the last stitch. The middle cerebral artery was then irrigated with heparinized saline and the last stitch was placed. The temporary clip was then removed from the distal middle cerebral artery and there was good back flow noted into the anastomosis and bypass vessel. The proximal clip was then removed from the middle cerebral artery and finally the temporary clip was removed from the proximal superficial temporal artery. Two small bleeding points were coagulated and hemostasis was obtained. The anastomosis line was noted to be dry. The self-retaining retractors were removed and hemostasis was obtained in the frontal and temporal lobe. The area was irrigated and lined with Surgicel. The dura was then closed, leaving an opening for the bypass vessel at the inferior aspect, using a 4-0 Nurodon suture. The temporalis muscle and fascia were also closed, also leaving an opening for the bypass vessel to pass through. Prior to closing the temporalis, the bone flap was replaced and held in place using a microplate and screw system. The skin was then closed using 2-0 Dexon for the galea and 4-0 nylon in a running locking fashion for the skin. The needle, sponge, and instrument count were correct at the end of the case. The estimated blood loss was 200cc. The patient was transfused with one unit of packed red blood cells. The incision was then dressed sterilely with Telfa and Tegaderm. The patient was allowed to wake-up and was extubated. She was transferred to the bed and was noted to be moving all four extremities and was taken to the Surgical Intensive Care Unit in stable condition.

ICD-10-PCS codes: _____

Lymphatic and Hemic System

Body parts defined for the lymphatic and hemic system are the lymphatics which includes the lymph nodes, bone marrow sites, and the spleen. Qualifiers identify bone marrow graft sources and "diagnostic" for excision operations.

Excision operations are frequently performed on the structures of the lymphatic and hemic system. However, the root operation is resection when a lymph node chain is removed.

<i>Root operation</i>	Excision
<i>Definition</i>	Cutting out or off, without replacement, a portion of a body part
<i>Explanation</i>	Involves the act of cutting with either a sharp instrument or other method such as a hot knife or laser
<i>Encompasses</i>	Biopsy, core needle biopsy, debridement, debulk, fine needle aspiration, punch, shuck, trim, wedge
<i>Examples</i>	Partial nephrectomy Wedge ostectomy Pulmonary segmentectomy

Exercise ten

1. The root operation for a punch biopsy of the skin is _____.
2. The body part character code for left inguinal lymphatics is _____.
3. The first four characters of the ICD-10-PCS code for a mesenteric lymph node biopsy are _____.
4. The seven character ICD-10-PCS code for radical resection of the left cervical lymph nodes is _____.
5. The seven character ICD-10-PCS code for a splenectomy is _____.

Eye

All body part characters are identified as right or left including structures of the eye, retinal vessels, extraocular muscles, eyeballs, lacrimal glands, and ducts. Qualifiers listed include three types of corneal grafts, nasal cavity as a bypass site and "diagnostic" for excision operations.

Extirpation procedures are occasionally performed on the eye.

Root operation Extirpation

Definition Taking or cutting out solid matter from a body part

Explanation Taking out solid matter (which may or may not have been broken up) by cutting with either a sharp instrument or other method such as a hot knife or laser, by blunt dissection, by pulling, by stripping or by suctioning, with the intent not to take out any appreciable amount of the body part. The solid matter may be imbedded in the tissue of the body part or in the lumen of a tubular body part.

Examples Sequestrectomy
Cholelithotomy

Exercise eleven

1. The root operation for removal of foreign body from the eye is _____.
2. The body part character code for right upper eyelid is _____.
3. The first four characters of the code for open transfer of extraocular muscles of right eye are _____.
4. The seven character ICD-10-PCS code for right corneal allogeneic transplant is _____.
5. The seven character ICD-10-PCS code for open intraluminal dilation of the right lacrimal duct is _____.

Ear, Nose and Sinus

For the ear, nose, and sinus system, specific body part characters are assigned to the parts of the ear, nose, and sinuses distinguishing right and left structures. Qualifiers include “endolymphatic” for bypass operations and "diagnostic" for excision operations.

Alteration procedures may be performed on the external ear.

<i>Root operation</i>	Alteration
<i>Definition</i>	Modifying the natural anatomical structure of a body part without affecting the function of the body part
<i>Explanation</i>	Principal purpose is to improve appearance
<i>Examples</i>	Face lift Breast augmentation

Exercise twelve

1. (T) (F) Alteration procedures affect the function of the involved anatomical structure.
2. The body part character for the nasopharynx is _____.
3. The first four characters of the ICD-10-PCS code for submucous resection of nasal septum are _____.
4. The seven character ICD-10-PCS codes for bilateral insertion of drainage tubes in the right and left tympanic membranes are _____.
5. The seven character ICD-10-PCS code for the endoscopic removal of a foreign body from the nose is _____.

Respiratory System

Specific body part characters for the respiratory system distinguish the bronchus of each lung lobe and the lobe. The pleura, mediastinum, and diaphragm are also assigned body part characters. The pleural cavity, however, is included in the Anatomical Regions system. The only qualifiers are skin for bypass operations, "diagnostic" for excision operations and types of graft for transplantation operations.

Lung transplant operations are performed in a few medical centers.

<i>Root operation</i>	Transplantation
<i>Definition</i>	Putting in or on all or a portion of a living body part taken from another individual or animal to physically take the place and/or function of all or a portion of a similar body part
<i>Explanation</i>	The native body part may or may not be taken out. The transplanted body part may either physically take the place of the native body part or simply take over all or a portion of its function.
<i>Examples</i>	Lung transplant Kidney transplant

Exercise thirteen

1. **(T) (F) The native body part may or may not be taken out in the root operation transplantation.**
2. **The body part character for the right middle lung lobe is _____.**
3. **The first five characters of the ICD-10-PCS code for open intraluminal dilation of trachea with stent are _____.**
4. **The seven character ICD-10-PCS code for an open permanent tracheostomy is _____.**
5. **The seven character ICD-10-PCS code for open lobectomy of upper right lung is _____.**

Exercise fourteen

Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the lymphatic and hemic, eye, ear, nose and sinus and respiratory systems.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Acquired immune deficiency syndrome and chronic sinusitis.

POSTOPERATIVE DIAGNOSIS: Acquired immune deficiency syndrome and chronic sinusitis.

OPERATION: Bilateral endoscopic sinus surgery consisting of bilateral maxillary antrostomies, bilateral anterior and posterior ethmoidectomies, and left-sided sphenoidotomy.

BRIEF HISTORY:

This patient is a 50-year old male with AIDS and chronic sinusitis complicated by fevers, nausea, and anorexia refractory to medical therapy. He was recommended for endoscopic sinus surgery by the Infectious Disease Service.

PROCEDURE:

The patient was induced under general anesthesia in the operating suite and intubated oral tracheally without difficulty. He was draped in the usual sterile fashion. Pledgets with 1% lidocaine and 1:70,000 epinephrine were placed bilaterally in the nasal passages for decongestion. After these had been intact for approximately five minutes, they were removed and the patient had 1% lidocaine with 1:100,000 epinephrine injected, approximately 4 cc, into each side of the nose. The lateral wall of the nose, middle turbinate, uncinate process, and ethmoid bulla were injected. Pledgets were replaced on the right side of the nose. The middle turbinate was medialized, revealing secretions and some purulent discharge from the area of the maxillary sinus on the lateral wall of the nose. The uncinate process was excised using an incision with a Freer dissection and straight biting Blakesley. Curved suction was used to identify the maxillary ostium, which was enlarged with backbiting forceps along the anterior aspect. The ethmoid bulla was identified with suction and the anterior end of the middle turbinate, which had polypoid changes and was obscuring the view of the ethmoid sinuses, was excised, leaving the posterior portion of the middle turbinate intact as a landmark. Then the ethmoid bulla and cells were entered with suction and excised with straight biting Blakesley forceps. During dissection of the ethmoid sinuses, there was intermittent ballottement of the ipsilateral orbit to check for dehiscence along the lamina papyracea and the lamina was noted to be intact. The anterior and posterior ethmoid sinuses had grossly edematous inflamed mucosa, with some mucoid and purulent secretions, which were opened back to the anterior wall of the sphenoid sinus, which measured 6.5 cm from the naris on the left side. A sphenoidectomy was performed with suction and Blakesley forceps and suction passed into the sphenoid sinus, with mucopurulent secretions removed. This measured approximately 8.5 cm to the back wall of the sphenoid sinus. Following this, the procedure was finished on the left side. Pledgets were replaced for decongestion and hemostasis. Attention was then directed to the right side of the nose where a similar procedure was performed. The middle turbinate was medialized. An uncinectomy was performed with a Freer and Blakesley. The maxillary ostium was identified with curved suction and the antrostomy performed with suction and backbiting forceps. The ethmoids were entered and excised in similar fashion with Blakesley forceps. Surgery on this patient was made more difficult due to the gross inflammation and oozing at the time of surgery, which caused slower exploration of the sinuses in the interest of safety. However, the ethmoidectomy on the right side was able

to be completed without having to stop the procedure for blood loss. At the end of the procedure the bilateral nasal passages were packed with one Merocel sponge coated with Bacitracin, which were expanded and this was noted to create hemostasis bilaterally. The oropharynx, nasopharynx, and hypopharynx were suctioned clean of small amounts of blood clots and secretions and were inspected prior to waking the patient from general anesthesia, and there was not noted to be any significant bleeding into the pharynx from the posterior nasal passages. Therefore, the patient was awakened from general anesthesia, extubated without difficulty in the operating room, and transferred awake and stable to the recovery room, with spontaneous ventilation.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Malignant melanoma of the left foot

POSTOPERATIVE DIAGNOSIS: Malignant melanoma of the left foot

OPERATION: Left radical groin dissection.

COMPLICATIONS: This was a clean case. There were no complications. The sponge, needle and instrument counts were reported as correct.

INDICATIONS FOR PROCEDURE:

The patient is a 65-year old male who recently had undergone a wide excision with a split-thickness skin graft to the left lateral foot for a malignant melanoma. During his follow up visit, he was noted to have a palpable node in his left superficial groin. For this reason, the patient was electively scheduled for a therapeutic left radical groin dissection.

PROCEDURE:

The patient was taken to the operating room and placed in the supine position and general anesthesia was induced without difficulty. The entire abdomen, groin and left thigh were prepped and draped in the usual sterile fashion. We began the procedure by making a curvilinear incision in the left lower quadrant extending superior and laterally to the flank. The skin was excised with a #24 blade and muscle layers were divided with Bovie cautery. We initially entered the abdomen for manual exploration and palpated no liver lesions. We also palpated no peri-aortic nodal disease. We then sutured the peritoneum closed and then proceeded with the surgery in a retroperitoneal fashion by bluntly taking the peritoneum and pushing it superiorly and medially. The Bookwalter retractor was placed for exposure. We began the dissection at the bifurcation of the aorta and placed one large clip at the superior extent of our dissection. Carefully all the lymphatic tissue was dissected off of the common iliac artery and placed on one container and sent to pathology. We then continued our dissection along the external iliac artery and vein in a similar fashion, sharply dissecting the nodal tissue and using clips to control any bleeding. into a separate container as well. We then extended our dissection to include the obturator nodes and placed them in a separate container as well. We then inspected the wound and used the Bovie cautery to control any residual bleeding vessels. We then placed it back into the wound and placed our attention to the superficial groin. Another skin incision was placed approximately two finger breadths below the groin crease parallel to the groin crease. Skin flaps were raised superiorly and inferiorly with sharp dissection. We began the dissection at the lateral aspect taking all the nodal and subcutaneous tissue as well as the fascia off of the sartorius muscle, sweeping it all medially. We then extended the dissection up approximately 3 cm on to the inguinal ligament as well. We continued the dissection medially until we encountered the femoral sheath. The femoral sheath was opened with sharp dissection. The femoral nerve was identified and all nodal tissue on top of it was removed with the specimen. We then skeletonized the femoral artery and vein with sharp dissection as well. We then turned our attention to the medial aspect, sweeping all of the nodal tissue off the adductor group laterally. This was carried distally until the adductor muscle group and the sartorius muscle group intersected. This was the most distal aspect of our dissection. The superficial saphenous vein was divided and ligated distally and then we dissected further along the medial edge of the femoral vein and ligated

and divided the saphenofemoral junction. We then were clear of any major structures and quickly removed the rest of the nodal tissue off the adductor muscle group. We then controlled any bleeding with Bovie cautery.

We were then ready for the closure. We used heavy Mayo scissors to remove approximately 1 cm of the skin flaps both inferiorly and superiorly to get fresh skin edges for closure. Two Jackson-Pratt drains were placed in the deep groin. The superficial groin was closed with interrupted #4-0 chromic suture for the flaps and then interrupted #4-0 nylon suture was used to approximate the skin. The abdominal wound was closed in two layers with interrupted #0 Maxon suture. Skin staples were used to approximate the skin.

A sterile dressing was then placed. The patient was awakened, extubated in the operating room and taken to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: 1. Nasal deformity
2. History of bilateral cleft lip and palate

POSTOPERATIVE DIAGNOSIS: 1. Nasal deformity
2. History of bilateral cleft lip and palate

OPERATION: Columellar lengthening

ANESTHESIA: General

INDICATIONS:

This 17-month old baby was born with bilateral cleft lip and palate which has been repaired in the past. He presents with significant cleft nasal deformity. The procedure of a contraction of cleft nasal deformity and columellar lengthening was discussed with the parents in detail.

PROCEDURE:

The patient was taken to the operating room where under general anesthesia and standard prep and drape, Cronin type of procedure was performed for the columellar lengthening. The base of the columella and the sill of the nose were infiltrated with one percent Xylocaine with epinephrine. We then proceeded with complete mobilization of the nostril sella and the middle of the medial cruces. With sharp and blunt dissection the medial crura of the alar cartilages and the sill of the nose were completely mobilized from the scar tissue in the lip. Using a double-pronged hook the nostrils were pulled forward. Meticulous hemostasis was carried out and then the wounds were closed in a Z-Y fashion using absorbable 5-0 Dexon sutures and interrupted 6-0 nylon sutures. This gave a good projection to the nose. The estimated blood loss of the procedure was 25 cc. There were no complications. At the end of the procedure, the patient was discharged home to be followed up in the plastic surgery clinic.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Pulmonary emphysema secondary to chronic obstructive pulmonary disease

POSTOPERATIVE DIAGNOSIS: Pulmonary emphysema secondary to chronic obstructive pulmonary disease

OPERATION: Single lung transplant, right side

INDICATIONS FOR PROCEDURE:

This is a 59-year old male with bilateral pulmonary emphysema, end-stage, secondary to chronic obstructive pulmonary disease. The patient has been worked up and found suitable for lung transplant. A suitable donor has been identified. The patient was taken to the operating room for right sided single lung transplant.

PROCEDURE:

After satisfactory induction of general anesthesia and endotracheal intubation, and placement of appropriate lines, the patient was placed on the operating room table with the right chest up and was then draped sterilely including the right groin. Standard lateral posterior thoracotomy incision was made and the right chest cavity was entered through the fifth intercostal space without difficulty. The patient had a few adhesions to the chest wall which were taken down without difficulty. The hilar structures were then dissected out and using a TA-30 stapler, the inferior and superior pulmonary vein and the pulmonary artery were divided between staple lines.

The right main stem bronchus was then divided and suctioned out. The hilum was then irrigated with antibiotic solution. Bleeding was stopped using electrocautery. The pulmonary veins were further dissected out and the pericardium opened and the confluence of the vein identified. It was noted that the pulmonary artery was rather large and the inferior part of the pulmonary artery would be suitable for anastomosis. The superior part was then stapled again close to the confluence with the main pulmonary artery. The donor lung was then obtained from the back table and was inspected and found to have normal anatomy, suitable for transplantation.

The bronchus was divided, cultures were obtained and sent from the bronchus. The bronchus was divided approximately 3-4 mm above the confluence between the upper lobe bronchus and the intermediate bronchus. The donor lung was then placed into the chest cavity and anastomosis carried out between the bronchus using a running #4-0 Maxon posteriorly in the membranous portion and interrupted #4-0 Maxon in the cartilage portion, invaginating the donor bronchus into the recipient bronchus. All ligatures were then tied. Then attention was focused on the venous side. A clamp was placed across the atrium just below the confluence of the superior and inferior pulmonary vein. The veins were then opened and connected. Anastomosis was then carried out to the recipient pulmonary vein using a running #4-0 Prolene.

This was not ligated at the end to be able to de-air the lung. The pulmonary artery was then cut to the appropriate length and anastomosis carried out between that and the inferior part of the pulmonary artery using a running #4-0 Prolene. The clamp was first removed off the artery and after having taken care to de-air the venous side, the venous anastomosis was ligated and the clamps were

removed. The lung immediately became vascularized and ventilation was then started into the donor lung without difficulty or any signs of leak from the bronchial anastomosis. The hilar area was then copiously irrigated with antibiotic solution. Some minor bleeding was identified and ligated. The patient was perfectly stable during this time. Two chest tubes were then placed anterior and posterior, through separate incisions and the main incision was closed in layers using Dexon to re-approximate the ribs and Dexon in the muscle layers.

The subcutaneous tissue was closed with #00 Dexon and #000 Dexon in the skin subcuticular. Sterile dressings were applied.

Estimated blood loss was 350 cc. The patient tolerated the procedure well and was taken to the intensive care unit, intubated, in stable, but critical condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Right lung nodule

POSTOPERATIVE DIAGNOSIS: Right lung, poorly differentiated carcinoma

OPERATION: Right video assisted thoracoscopic surgery and right lateral limited thoracotomy with wedge resection of the right upper lobe tumor and mediastinal and subcarinal node sampling.

ANESTHESIA: General endotracheal

INDICATIONS:

The patient is a 66-year old male who presented to his primary care physician with a chief complaint of a chronic cough. He underwent a chest X-ray which showed a suspicious nodule in his right lung and CT scan of the chest which showed an approximately 2.5 cm nodule in the right upper lobe of the chest.

PROCEDURE:

He underwent bronchoscopy and attempt at transbronchial biopsy which showed no evidence of tumor. Given the suspicious nature of this lesion, he was felt to require open biopsy.

The patient was taken to the operating room and placed in the sitting position on the table. After successful placement of the thoracic epidural and catheter, the patient was placed in the supine position. The patient then underwent endotracheal anesthesia with a double-lumen Carlens tube and its position was verified using bronchoscopy by the anesthesia service. The patient was then placed in the left decubitus position and all pressure points were padded. The right chest area was prepped and draped in the usual sterile fashion. Three ports were placed, two along a proposed lateral thoracotomy incision and one inferiorly. A skin incision was made in each using a #10 blade and dissection carried down to the subcutaneous tissues and muscles using a Bovie coagulation cautery. The chest cavity was entered under direct visualization and the right lung was deflated. After multiple attempts to grasp the upper lobe and feel the tumor, which were unsuccessful, a small adhesive band at the apex was lysed under thoracoscopic guidance.

It was elected at this point to perform a limited lateral thoracotomy which was performed by connecting the thoraco-port incisions along the proposed thoracotomy incision. This was achieved using a skin knife and Bovie coagulation cautery such that the latissimus dorsi muscle was divided and an attempt was made to save the posterior half of the serratus anterior muscle. Rib retractors were placed and the upper lobe was grasped and there was noted to be a large posterior superior mass in the right upper lobe. This was wedged out using sequential firings of a GIA stapler and sent to pathology department for frozen section. Similarly there was noted to be multiple firm lymph nodes in the upper mediastinum which were fixed between the upper lobe, pulmonary artery and mediastinal structures. A biopsy of these were taken using a #10 blade and sent to pathology department for frozen section. Similarly subcarinal nodes were dissected free and sent for permanent sections to the pathology department. The frozen section of the nodule came back as poorly differentiated carcinoma of the lung, adenocarcinoma and at this point the patient was felt to have an unresectable disease.

A 32 French chest tube was placed to the lower stab wound and secured in place using an 0-silk suture. The wound was closed in layers using #2 Dexon and a running subcuticular 3-0 Dexon stitch. Similarly the upper wound was closed using pericostal sutures of #1 Vicryl. The small area of the serratus and the latissimus dorsi muscle was approximated using a #1 Vicryl suture. Subcutaneous tissues were approximated using a 2-0 Vicryl suture and the skin was closed using a running subcuticular 3-0 Vicryl stitch. Steri-strips and a sterile dressing were applied. The patient had an estimated blood loss of 150 cc, received 700 cc of crystalloid in the operating room and 150 cc of Hespan. He was extubated in the operating room and taken to the recovery room in satisfactory condition having tolerated the procedure well. All sponge and needle counts were correct and a stat portable chest x-ray was ordered.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Senile cataract of the left eye.

OPERATION: Extracapsular cataract extraction with posterior chamber intraocular lens implantation

FINDINGS:
Complications, none. Specimen, left lens.

PROCEDURE:

The patient was brought into the operating room and placed supine on the table. She was administered oxygen underneath the drapes and her vital signs were monitored throughout the procedure. Adequate akinesia and anesthesia were then achieved using a 50/50 mixture of 0.75 percent marcaine and two percent lidocaine without epinephrine. 150 units of Wydase were added to 10 cc of the above solution and 8 cc were given in a peribulbar block. The eye was then sterilely prepped and draped in the usual manner for ophthalmic surgery. The lid speculum was placed and BSS was used throughout the procedure to keep the cornea and conjunctiva moist. A superior peritomy was made and adequate hemostasis was achieved using eraser cautery. A posterior one-half thickness groove was placed for a full 10 mm cord length posterior to the blue line. This was beveled forward toward clear cornea. The anterior chamber was entered at the 11:30 position with a super blade. The eye was filled with a viscoelastic substance. A can opener type capsulotomy was performed with a cystotome. Hydrodissection was carried out and the lens was rocked gently with a cystotome to loosen it from the cortex. The wound was then opened with corneal scleral scissors. The lens was prolapsed in the anterior chamber with a Sinsky hook and removed using a lens vectis. The anterior chamber was then temporarily closed with 8-0 Vicryl sutures and cortical clean-up was performed without complications. One of the sutures was removed and a posterior chamber intraocular lens (Alcon model #MZ50BD) with a power of 23.5 diopters and Serial #370088.175 was inspected, rinsed, and placed into a capsular bag. Miochol was then instilled into the anterior chamber with some pupillary constriction. The Vicryl sutures were removed and interrupted 10-0 nylon sutures were placed. Before the final suture was placed the irrigating aspiration unit was used to remove the viscoelastic substance. Additional Miochol was instilled in the anterior chamber with further pupillary constriction. The conjunctiva was pulled over the incision and cauterized into place. The conjunctiva pulled back open and, therefore, an 8-0 Vicryl suture was placed with a buried knot. Subconjunctival injections of gentamycin and dexamethasone were given and the lid speculum was removed. Dexacidin ointment was applied along with some pilocarpine ointment. The periocular area was cleansed and the eye was patched and shielded. The patient tolerated the procedure well and was escorted to the recovery room in good condition.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Retraction pocket, possible cholesteatoma, left ear, with ossicular erosion.

POSTOPERATIVE DIAGNOSIS: Retraction pocket, possible cholesteatoma, left ear, with ossicular erosion.

OPERATION:

Excision of retraction pocket/cholesteatoma, left ear, and Type 3 tympanoplasty

PROCEDURE:

With patient under satisfactory general endotracheal anesthesia the left ear was sterilely prepared and draped in the usual fashion for aural surgery. The postauricular sulcus was infiltrated with 8 cc of Xylocaine one percent with 1:20,000 epinephrine. The tympanic membrane was examined with a surgical microscope. The anterior half of the pars tensa was normal. The posterior half of the pars tensa was deeply retracted into the posterior recesses of the tympanum and slightly under the scutum. This deep retraction pocket was filled with ceruminous debris and a small amount of keratin debris. Just posterior to the short process of the malleus, there was a separate shallow attic retraction pocket. A canal incision was made from 12 to 6 o'clock on the posterior canal wall approximately 5 mm from the annulus. A postauricular incision was then made and carried down to the temporalis fascia superiorly where a circular piece of fascia was taken for later use as a graft. The incision was then carried down to the posterior canal wall skin which was then elevated off of the posterior bony canal to the level of the previously made canal incision. Self-retaining retractors were placed and excellent visualization of the entire circumference of the tympanic membrane was obtained. A tympanomeatal flap was then elevated. Before elevating the flap completely, it was evident that a spontaneous myringostapediopexy had occurred with the tympanic membrane adherent to the stapes head. No long process of the incus could be seen through the tympanic membrane. Therefore, the flap was reflected forward carefully dissecting the severely retracted posterior half of the pars tensa and removing it from the stapes head. Because of a lack of a middle fibrous layer and extraordinary thinness of the posterior half of the pars tensa, it shredded very easily on attempted removal from the medial and posterior walls of the middle ear, however, with complete hemostasis and high power magnification, all remnants of this deep retraction pocket were removed from the facial recess, sinus tympani, and medial wall of the middle ear. The attic retraction pocket was very shallow and was very easily dissected from the neck of the malleus upon reflecting the pars flaccida as part of the tympanomeatal flap. The scutum was intact. There was no cholesteatoma in the epitympanum. Normal epitympanic mucous membrane was noted and there was normal mucous membrane lining the middle ear. There was no pus or effusion in the middle ear spaces. There was no evidence of the long process of the incus. After ascertaining complete removal of the deeply retracted pars tensa by using Buckingham mirrors, the middle ear was packed with Gelfoam soaked in Tis-U-Sol and the temporalis fascia graft was placed medial to the malleus handle and across the stapes head and onto the posterior canal wall as a Type 3 tympanoplasty. The tympanomeatal flap was packed in position using silk strips (four) folded over cotton balls soaked in cortisporin as a rosebud dressing. The postauricular incision was closed 3-0 sutures for the subcutaneous tissue and interrupted 5-0 nylon for the skin. Posterior canal wall skin was impregnated with Bacitracin ointment. Sterile mastoid dressing was applied to the ear. The

patient tolerated the procedure very well. There were no complications.
Estimated blood loss was less than 10 cc.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: Cystic anterior mediastinal mass

POSTOPERATIVE DIAGNOSIS: Thymic cystic mass

OPERATION: Excision of right lobe of thymus

PROCEDURE:

This is a 5-year-old female with a history of HIV positive, who was evaluated for progressive respiratory compromise and was found to have on chest x-ray followed by CT scan an anterior mediastinal mass that appeared to be cystic in nature on CT scan. Two attempts were made at CT-guided biopsy, which were unsuccessful. The patient was scheduled for biopsy of the anterior mediastinal mass operatively.

The patient was taken to the operating room, prepped and draped in the usual manner, and a right anterior thoracotomy incision was made in the costal space, and the chest entered. Upon entering the chest the mass was readily identified and initially an approximately 2 cm x 2 cm piece removed and sent for biopsy, along with the fluid. On further exploration of the mass, it was noted to be non-adherent to the surrounding structure, and also at this point identified to be the right lobe of the thymus. This was excised with a combination of blunt and sharp dissection and it was done easily, and the entire right lobe of the thymus was thus dissected. The rest of the mediastinal structures were identified and noted to be normal on the right side. The thoracotomy incision was then closed with #3-0 Dexon sutures. The skin incision closed with continuous subcuticular sutures. The patient tolerated the procedure well, was extubated postoperatively, and transferred to the recovery room in awake and alert stable condition. Estimated blood loss was 50 cc. Intraoperative fluids given 300 cc of crystalloid.

ICD-10-PCS codes: _____

Mouth and Throat

The mouth and throat system includes the salivary glands, epiglottis, larynx, vocal cords, and teeth. Dental operations are included in this system.

Radioactive materials may be inserted in the mouth.

<i>Root operation</i>	Insertion
<i>Definition</i>	Putting in a nonbiological appliance that monitors, assists, performs or prevents a physiological function, but does not physically take the place of a body part
<i>Encompasses</i>	Cutdown, implantation, passage
<i>Examples</i>	Implant a radioactive element Insert a diaphragmatic pacemaker

Exercise fifteen

1. The root operation for cutdown is _____.
2. The body part character for the epiglottis is _____.
3. The first four characters of the ICD-10-PCS code for open removal of right parotid duct stone are _____.
4. The seven character ICD-10-PCS codes for tonsillectomy and adenoidectomy are _____.
5. The seven character ICD-10-PCS code for percutaneous revision of cleft palate (hard) repair using homograft is _____.

Gastrointestinal

The gastrointestinal system identifies body part characters for the entire esophagus, stomach, small and large intestine and specific characters for segments such as the duodenum, ileum, and jejunum. The peritoneum is also assigned a body part character, but the peritoneal cavity is included under Anatomical Regions. Qualifiers include anatomical sites for bypass, replacement and transfer operations; "diagnostic" for excision operations; and three types of graft for transplantation operations.

Inspection operations are commonly performed on the gastrointestinal system. Inspection is coded only if it is the sole objective of the procedure.

<i>Root operation</i>	Inspection
<i>Definition</i>	Visually and/or manually exploring a body part
<i>Explanation</i>	Looking at a body part directly or with an optical instrument or feeling the body part directly or through intervening body layers
<i>Encompasses</i>	Check, enter, examination, exploration, expose, open, probe
<i>Examples</i>	Diagnostic arthroscopy Exploratory laparotomy

Exercise sixteen

1. The root operation for probing of lacrimal duct is _____.
2. The body part character for the mesentery is _____.
3. The first five characters of the ICD-10-PCS code for open suturing of stomach are _____.
4. The seven character ICD-10-PCS code for open revision of bypass of lower esophagus is _____.
5. The seven character ICD-10-PCS code for sigmoidoscopy is _____.

Hepatobiliary System and Pancreas

Each lobe of the liver is assigned a separate body part character. Only one body part character is assigned to the pancreas although the various ducts of the hepatobiliary system are assigned individual body part characters. Qualifiers include anatomical sites for bypass operations, "diagnostic" for excision operations, and three types of graft for transplantation operations.

Fragmentation operations are performed occasionally on the gallbladder.

Root operation Fragmentation

Definition Breaking down solid matter in a body part

Explanation Physically breaking up solid matter which is not normally present in a body part such as stones and foreign bodies. The break up may be accomplished by direct physical force or shock waves applied directly or indirectly through intervening layers. The resulting debris is not taken out but is passed from the body or absorbed by the body. The solid matter may be in the lumen of a tubular body part or in a body cavity.

Encompasses Pulverization

Example Lithotripsy, urinary stones
Lithotripsy, gallstones

Exercise seventeen

1. The root operation fragmentation encompasses _____ operations.
2. The body part character for the Ampulla of Vater is _____.
3. The first four characters of the ICD-10-PCS code for drainage of abscess of right lobe of liver are _____.
4. The seven character ICD-10-PCS code for open intraluminal repair of fistula of common duct is _____.
5. The seven character ICD-10-PCS codes for percutaneous intraluminal endoscopic dilation of Ampulla of Vater and common bile duct _____.

Exercise eighteen Assign the correct ICD-10-PCS codes to the following operative reports involving the mouth and throat, gastrointestinal system and hepatobiliary system and pancreas.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Esophageal mass

POSTOPERATIVE DIAGNOSIS: Esophageal mass

OPERATION: Esophagogastroduodenoscopy and flexible bronchoscopy.

ANESTHESIA: General endotracheal.

INDICATIONS:

The patient is a 65-year-old male who presented initially to his primary care physician with a complaint of halitosis. He underwent a chest x-ray which was within normal limits as well as a barium swallow which showed a scalloped mass in his esophagus at the thoracic inlet. He also underwent a CT scan of the chest which similarly showed a thickening of the posterior esophageal wall at the level of the thoracic inlet. The patient denies constitutional symptoms or dysphagia.

PROCEDURE:

The patient was taken to the operating room and placed in the supine position on the table. After successful induction of general endotracheal anesthesia a flexible gastroscope was placed. Care was taken on passage of the gastroscope through the esophagus, however, in the hypopharynx through to and including the stomach and proximal portion of the duodenum, the mucosa was noted to be smooth and without lesions. As there was no suspicious tissue to biopsy the esophagoscope was withdrawn and a flexible bronchoscope was placed through the endotracheal tube. Again, there were noted to be no mucosal lesions or deviations of the trachea on bronchoscopy. The procedure was terminated. The patient was awakened in the operating room and extubated. He tolerated the procedure well, had minimal blood loss, received 500 cc of crystalloid in the operating room and was taken to the recovery room in satisfactory condition having tolerated the procedure well. All sponge and needle counts were correct.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PROCEDURE PERFORMED: 1. Subtotal gastrectomy
2. Billroth II anastomosis

ANESTHESIA: General endotracheal

Complications: None

STATE OF MEDICAL NECESSITY:

The patient is a 67 year-old male who was admitted with a history of hematemesis for the past 36 hours. He also had some tarry black stools and on endoscopy today was noted to have a giant gastric ulcer which was actively bleeding. Endoscopy was unable to correct this problem and so patient subsequently referred for surgical intervention. After discussing with the patient and his sister, they understood the risks of surgery and agreed to proceed in that manner.

OPERATIVE PROCEDURE:

The patient was brought to the operating room and placed on the table in a supine position at which time general anesthesia was administered without difficulty. His abdomen was then prepped and draped in the usual sterile fashion. An upper midline incision was made using a #10 blade. The peritoneum was then entered using the Metzenbaum scissors and hemostats. A Bookwalter retractor was placed and on inspection of his abdomen, he was noted to have a cirrhotic liver with micronodular cirrhosis. He had minimal varicosities and evidence of portal hypertension but did have some of this. The left lobe of the liver was mobilized at that point and the retractors were placed. On palpation of the stomach along the lesser curvature, at approximately the mid portion, there was a large inflammatory mass like area. At this point, the gastrocolic omentum was taken off the greater curvature of the stomach to the level of the pylorus. Additionally, the lesser omentum was taken down off the lesser curvature of the stomach to the level of the pylorus. The stomach was then transected approximately 4-5 cm proximal to this mass which could very well have been a carcinoma. The TA-90 stapler was fired at this level 4 to 5 cm proximal and the stomach was reflected down at that point. An additional TA stapler was used to staple off the dead end and the specimen was removed from the operating field. On opening of the specimen, there was a large gastric ulcer as noted along the lesser curvature of the stomach and there was clear proximal margins of 4 to 5 cm. At that point, the stomach was reconstructed in a Billroth II fashion by bringing the jejunum through the transverse colon mesentery. Two stay sutures were placed to align the jejunum along the posterior wall of the stomach and a GIA stapler was used to create the anastomosis without difficulty. A TA-60 stapler was used to close the gastrotomy and enterotomy defect without difficulty. The stomach and jejunum were then pulled below the transverse colon mesentery and this was tacked in several places using 3-0 silk sutures. A feeding jejunostomy was then placed distal to this using the feeding jejunostomy kit without difficulty. The abdomen was then irrigated thoroughly using normal saline solution. Hemostasis was achieved using Bovie electrocautery. The midline incision was then closed using #1 PDS in a running fashion. The skin was closed using skin staples. A sterile dressing was applied. The patient was extubated in the operating room and returned to the Intensive Care Unit in guarded condition.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Acute cholecystitis with choledocholithiasis

POSTOPERATIVE DIAGNOSIS: Acute cholecystitis with choledocholithiasis, with pericholecystic abscess

OPERATION: Attempted laparoscopic cholecystectomy converted to open cholecystectomy, intraop cholangiogram and drain placement.

INDICATIONS FOR PROCEDURE:

The patient is a 57-year-old male who presented to the Emergency Room with complaints of right upper quadrant pain, associated with eating but without any nausea or vomiting. He has had one prior episode in the past which resolved spontaneously. He had a low grade temperature with a positive Murphy's sign upon examination. He also had scleral icterus. His laboratory data revealed a bilirubin of 3.6 with slightly elevated alkaline phosphatase with mildly elevated liver enzymes. With the diagnosis of acute cholecystitis he was admitted and an ultrasound was obtained which revealed a thickened gallbladder wall with cholelithiasis and a small fluid collection between the gallbladder and the liver bed. The patient was started on IV antibiotics with resolution of his abdominal symptoms. An endoscopic retrograde cholangiopancreatography was obtained which revealed a questionable 2mm size filling defect in the common bile duct, which could be consistent with air or a small stone. However, this was an incomplete study because of poor patient compliance during the procedure. The patient was scheduled for a laparoscopic cholecystectomy with the possibility of an open procedure with trial cholangiogram.

DETAILS OF THE PROCEDURE:

After general anesthesia was induced, he was placed in the supine position. His bladder was straight catheterized, and a nasogastric tube was inserted. The abdomen was prepped and draped in the usual fashion. Using the Hasson open technique, an incision was made infraumbilically and the peritoneal cavity was entered. The Hasson port was introduced through the site and pneumoperitoneum created. A laparoscope was inserted and visual inspection of the intra-abdominal organs revealed a normal liver with stomach and small bowel. There seemed to be a dense inflammatory change around the gallbladder area.

A 5mm port was inserted on the right subcostal area laterally and a 5mm port was also introduced in the epigastric area. These were both inserted under direct vision. The liver was carefully elevated and an attempt made at removing some of the omental adhesions of the gallbladder. Because of the dense inflammatory rash around this area, this was unsuccessful. A decision was made to convert the procedure to an open cholecystectomy. Pneumoperitoneum was released and the trocar ports removed. The infraumbilical fascial defect was approximated with one PDS suture. A right subcostal incision was made, which was carried down through rectus muscle and the abdominal cavity entered. The densely inflamed omentum was then carefully taken off the thickened gallbladder using sharp as well as blunt technique. After careful dissection the cystic duct was identified. In order to facilitate the dissection an anterograde cholecystectomy was done removing the gallbladder off the liver bed. During the procedure a collection of pus was noted between these two tissues. Intraoperative cultures were obtained. Hemostasis was achieved with electrocautery as well as with pressure. The cystic duct was identified and distally ligated with a silk suture.

A small incision was made, and a cholangio-catheter was inserted. A cholangiogram under direct fluoroscopy was obtained which revealed normal intrahepatic as well as common bile duct without any filling defects. The contrast promptly emptied into the duodenum. The cystic duct was ligated with a silk suture and then divided. The cystic artery was likewise identified and ligated and divided. A prominent vein was noted which was coursing toward the gallbladder and this was likewise controlled, ligated and divided. The remainder of the gallbladder was then carefully taken off and excised. The abdomen was copiously irrigated with warm saline solution. Because of the presence of a pericholecystic abscess cavity, a decision was made to place a #10 Jackson-Pratt drain to drain this area. This was exited through one of the previous subcostal 5mm port sites. Prior to closure hemostasis was achieved. The abdominal fascia was approximated with two running layers of #1 PDS suture. The skin was then stapled. The patient tolerated the procedure well and was taken to the Recovery Room in good and stable condition extubated.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Retracted ileostomy

POSTOPERATIVE DIAGNOSIS: Retracted ileostomy

OPERATION: Revision of ileostomy

INDICATIONS:

The patient is an 83 year old female status post total abdominal colectomy for toxic megacolon with permanent ileostomy. Since her surgery the patient has experienced retraction of the ileostomy with multiple skin problems related to this.

FINDINGS:

The patient's ileostomy was completely retracted below the level of the skin with irritation of the peristomal skin. There was a pericostomy hernia located superiorly and medially with easily reducible small bowel.

PROCEDURE:

The patient was brought to the operating room and placed on the operating room table in a supine position. After adequate general endotracheal anesthesia had been achieved the skin of the abdomen was prepped with Betadine and draped in a sterile fashion. A scalpel was used to excise the skin around the ileostomy and this was carried down sharply through the skin and subcutaneous tissue. The ileum was dissected free from the subcutaneous tissue down to the level of the fascia on all sides. Superiorly and medially there was evidence of pericostomy hernia with several loops of small bowel. This was taken down. The hernia sac was opened and the small bowel returned to the abdomen. The fascia was then cleared on all sides and several interrupted sutures of #0 PDS were placed medially and laterally to snug up the fascia around the ileostomy, taking care to not make it too tight. The terminal ileum was mobilized for approximately six centimeters and then this was everted on itself as a Burke ileostomy taking stitches of #3-0 Vicryl in four quadrants through the edge of the ileostomy down to the seromuscular bite at the level of the skin and through the subcuticular layer of the skin. The ileostomy was further matured using interrupted #3-0 Vicryl sutures. The estimated blood loss was minimal. The patient tolerated the procedure well. The operative time was approximately one hour. The patient was taken to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Small bowel obstruction

POSTOPERATIVE DIAGNOSIS: 1. Small bowel obstruction
2. Mass at the ileocecal valve

OPERATION: 1. Exploratory laparotomy
2. Right hemicolectomy with primary ileal colostomy

INDICATIONS:

The patient is a 24 year old female who is status post cesarean section in 1989 who presented to the hospital with a four to five day history of crampy abdominal pain with nausea and vomiting and a one day history of obstipation. The patient reported a history of nephrolithiasis but she described that this pain was different from her renal colic pain. The patient admitted vomiting and vomited twice in the emergency room. The patient presented to the emergency room and on examination was noted to be distended with bowel sounds but no evidence of peritonitis. Plain views of the abdomen showed dilated loops of small bowel with air fluid levels. There was no air in the colon. The white blood cell count was 5.4 and the patient was afebrile. Because of the history of nephrolithiasis and the colicky nature of the pain, an intravenous pyelogram was obtained and this showed a double collecting system on the right and a double pelvis on the left. However, there was no genitourinary obstruction. At this time the diagnosis of small bowel obstruction was made and the patient was prepared for the operating room.

PROCEDURE:

The patient was brought to the operating room and after induction of adequate general anesthesia the abdomen was prepped and draped in the usual sterile fashion. A vertical midline incision was used to enter the abdominal cavity. There was noted to be on exploration dilated loops of small bowel which when followed down into the right pelvis, there was noted to be a mass in the region of the distal ileum and cecum. There was no evidence of creeping fat or gross inflammation. There were, however, a number of lymph nodes in the small bowel mesentery. The mass was easily mobilized and it was felt that a right hemicolectomy was indicated. The right colon was mobilized by incising the white line of Toldt and reflecting colon medially. The loose areolar tissue was taken down bluntly with a hand and adhesions were taken down sharply. The duplicate ureters on the right were identified and preserved. The colon was mobilized to the left and up to the level of the hepatic flexure. The mesentery was incised sharply with a knife and down to the level of the root of the mesentery. The mesentery of the right colon and the distal ileum was then taken down between Kellys and tied with #2-0 silk. This was taken down to the level of the take-off of the vessels. After removing the right colon specimen off the field, the distal ileum appeared to be of questionable viability. Therefore, another two feet of small bowel was resected to leave a healthy-appearing bowel to anastomose to the transverse colon. This bowel mesentery was taken down between Kellys and tied with #2-0 silk. I should mention that of note the GIA stapler was used to divide the bowel proximally and distally and the bowel clamps were applied proximally. At this time a primary anastomosis was planned. The side-to-side anastomosis was then formulated by lining up the antimesenteric borders of the small bowel and the colon and making an enterotomy in each loop of bowel and inserting the GIA stapler across and firing it to establish continuity. The TA-50 stapler was then used to close the defect and the remaining staple line was

then oversewed with interrupted #4-0 Lembert silks. After completion of the anastomosis it was found to be widely patent. The opening in the mesentery was then closed with a running #4-0 Dexon and hemostasis was obtained. The abdomen was irrigated with normal saline and hemostasis was insured. The fascia was then closed with an interrupted #0 Maxon and the skin was then closed using staples. The patient tolerated the procedure well. There were no complications. The sponge, needle and instrument counts were all correct at the end of the procedure. The patient was transferred to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Carcinoid tumor of the tail of the pancreas

POSTOPERATIVE DIAGNOSIS: Carcinoid tumor of the tail of the pancreas

OPERATION: Distal pancreatectomy and splenectomy

INDICATIONS FOR PROCEDURE:

The patient is a 47-year-old male status post orthotopic liver transplantation one and a half months before the current procedure. The patient was thought pre-operatively to have an epithelial hemangio-endothelioma of the liver for which he underwent a transplant which was quite successful, however, the pathology of the resected liver showed that the true cause of the liver disease was metastatic carcinoid tumor. The patient underwent work up which revealed the primary source of the carcinoid tumor in the tail of the pancreas. For this reason, the patient was taken back to the operating room for distal pancreatectomy and splenectomy, in order to attempt to radically cure the disease.

PROCEDURE:

The patient was taken to the operating room and placed in the supine position and general anesthesia with endotracheal intubation was obtained. The abdomen was prepped and draped in the usual sterile fashion and then bilateral subcostal incisions were re-opened and the abdomen entered without difficulty. The gastrocolic ligament was opened between ligatures and all the short gastric vessels were taken down between ligatures. In this fashion, the entire body and tail of the pancreas were exposed. The tumor was visualized and appeared to extend up to the neck of the pancreas without invading the head. For this reason, it was thought that curative resection was possible and the spleen was then mobilized from the phrenosplenic and splenocolic ligaments which were taken down sharply. The peritoneum was incised and the spleen lifted up along with the tail of the pancreas in the plane above Gerota's fascia and adrenal gland. The resection was continued above and below the border of the pancreas. Multiple anomalous arterial vessels directly to the tumor were ligated and divided until the whole length of the tail of the pancreas was mobilized. The splenic artery was then ligated and the junction between the splenic vein and the portal vein was identified. The splenic vein was divided and ligated off to this junction.

At this point, what appeared to be normal lymphatic tissue was felt all around, in correspondence of the neck of the organ, directly above the junction between the portal vein and the superior mesenteric vein. A GA stapler was fired at this point, removing the body and tail of the pancreas along with the spleen and the margin was sent for frozen section, which revealed no tumor on the resected end. The pancreatic stump was over sewn with running #4-0 Prolene to secure hemostasis. Then the liver was assessed once more and had no evidence of metastatic disease. The portal vein of the liver appeared to be in good shape as well as the arteries from the infrarenal aorta, previously constructed at the time of transplant, which was carefully preserved throughout the operation.

At this point a 10 mm. flat Jackson-Pratt drain was placed along the pancreatic bed and brought out through a stab wound in the left lower abdomen and then the fascia was closed in two layers with a running #1 Maxon suture. The skin was closed with staples. Estimated blood loss was about 500 cc. The patient received three units of packed red blood cells and three liters of crystalloid. The

patient was extubated right after the procedure and transferred to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Left parotid pleomorphic adenoma

POSTOPERATIVE DIAGNOSIS: Left parotid pleomorphic adenoma

OPERATION: Left superficial parotid lobectomy

INDICATIONS:

The patient is a 29-year-old lady who has had a 2 centimeter mass in the left parotid gland for about two months. A fine needle aspiration is consistent with a pleomorphic adenoma.

PROCEDURE:

The patient was prepped and draped in the usual fashion. After the induction of general endotracheal anesthesia an incision was made just anterior to the left ear and curving slightly behind the left ear lobe and then down parallel to the cervical crease approximately 1 centimeter below the mandible. Skin flaps were elevated anteriorly and posteriorly. The sternocleidomastoid was then exposed as well as the great auricular nerve which was transected. The dissection was then begun to identify the facial nerve trunk. This was identified in the usual place between the external auditory canal and the mastoid process. Dissection was then carried anteriorly on its superficial surface until the two divisions were identified. The superior portion of the facial nerve was dissected first. The tumor was noted to be in the superficial lobe just above the zygomaticotemporal portion of the nerve. This was reflected anteriorly as the nerve was dissected anteriorly.

Attention was then focused on the cervical mandibular portion using the same technique to expose the superficial portion of the nerve and reflect the gland anteriorly. The gland was rolled forward until its anterior margin was reached. This was then removed and sent from the field. All of the nerves were intact at the conclusion of the case. A small hemovac drain was placed in the wound and the skin edges were closed using interrupted Maxon and then interrupted nylon sutures. Estimated blood loss was 150 ccs. The sponge and the needle counts were correct times two. Pathology and findings: A 1 to 1.5 centimeters in diameter pleomorphic adenoma of the superficial parotid lobe.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: 1. Lower gastrointestinal bleed

POSTOPERATIVE DIAGNOSIS: 1. Diverticulosis of right and left colon.
2. Incidental ascending colon polyps

PROCEDURES: 1. Colonoscopy with polypectomy

INDICATIONS:

The patient is an 88 year-old female who presented with a single episode of asymptomatic bright red rectal bleeding and a hematocrit falling from 34 to 30. Some 1-1/2 years ago, she had a major lower gastrointestinal bleed requiring multiple transfusions. No definite source was identified. She is therefore undergoing repeat colonoscopy at this time.

DETAILS OF PROCEDURE:

The patient was examined with the Olympus 1T/100L colonoscope to the level of the cecum, without need of fluoroscopic control.

The patient had a tortuous, somewhat spastic sigmoid colon and a generally redundant total colon, making examination difficult. However, with persistence, the examination was completed to the cecum.

There was moderate diverticulosis of the sigmoid and descending colon as well as a number of diverticula noted in the ascending colon. There was nothing suggesting diverticulitis and nothing suggesting that a particular diverticulum had bled.

There were no vascular abnormalities noted of the cecum or elsewhere. There was no fresh or old blood anywhere throughout this examination.

There was an incidental approximately 7 mm erythematous sessile polyp on the fold just above the cecum. This was removed in a bloodless manner, via application of blended current with the snare cautery device. I saw no other polyps or masses.

Clearly, her lower gastrointestinal bleeding has ceased. I don't believe additional workup at this time will be revealing. She still could have arteriovenous malformation (AVM) of the small bowel or diverticulosis as the cause of her bleeding. Should she have another episode of bleeding this examination and/or a bleeding scan will probably need to be done again.

ICD-10-PCS codes: _____

CODING EXERCISE 9

PREOPERATIVE DIAGNOSIS: Dilantin hyperplasia

POSTOPERATIVE DIAGNOSIS: Dilantin hyperplasia

OPERATION: Full mouth gingivectomy

ANESTHESIA: General

PROCEDURE:

The patient was brought in, induced and nasally intubated and prepped and draped. A throat pack was placed. A full mouth gingivectomy was performed. The estimated blood loss was 15 milliliters. The duration of the surgery was two hours. The patient was brought to the recovery room awake.

ICD-10-PCS codes: _____

CODING EXERCISE 10

PREOPERATIVE DIAGNOSIS: Chronic periodontal disease

POSTOPERATIVE DIAGNOSIS: Chronic periodontal disease

OPERATION: Full mouth extraction
Alveoloplasty

INDICATIONS:

This 62-year-old female has a history of coronary artery disease, diabetes mellitus, hypertension, tonsillar carcinoma, chronic atrial fibrillation, and mitral valve regurgitation. She needs mitral valve replacement. Prior to treatment, the patient was consulted by the oral surgery service and noted to have moderate bone loss and periodontal disease with multiple caries. The decision was made for full mouth extractions and an alveoloplasty prior to any valve surgery as well as before any possible radiation treatment. Because of the patient's medical history, the decision was made to take the patient to the operating room under monitored anesthesia care for the procedure.

PROCEDURE:

The patient was brought to the main operating room and placed in a supine position on the operating room table. After the patient was adequately sedated by the anesthesia service, the patient was prepped and draped in the usual sterile oral surgery fashion. Approximately 5 cc of one percent Lidocaine with 1:200,000 Epinephrine was infiltrated on the lower arch. After the patient obtained profound anesthesia the following teeth were extracted with an elevator and a lower Universal forceps: the lower left molar, tooth numbers 20, 21, 22, 23, 24, 26, 27, and 28. They were all luxated and delivered without complications. A full thickness mucoperichondrial flap was then carried from the extraction site of tooth number 18 through the extraction site of tooth number 28 and on the distal of tooth number 28 a distal wedge was performed and on the distal of tooth number 18 a distal wedge was cut out. The flap was delivered buccally and the bone was smoothed and filed with rongeurs and then filed with a bone file. The sockets were curetted after the area was adequately smoothed down. It was copiously irrigated with a .9 normal saline rinse. After hemostasis was obtained Gelfoam and Surgicel pellets were packed into all of the extraction sites and good hemostasis was obtained. At that time a continuous running suture utilizing #3-0 chromic catgut suture was made from the lower left molar through tooth number 28 and it was then noted again that adequate hemostasis was obtained. Four-by-four gauze was placed in the mouth postoperatively. The patient tolerated the procedure well. The patient was transferred to the recovery room in stable condition breathing spontaneously. The estimated blood loss was 50 cc. Intravenous fluids administered 200 cc. The suture material used was #3-0 chromic catgut suture. The teeth were sent to pathology for gross examination.

ICD-10-PCS codes: _____

Endocrine System

Body part characters are assigned to the endocrine glands distinguishing between right and left glands. Each part of the thyroid gland and each parathyroid gland are assigned a specific character.

Reposition operations are not common, but they are occasionally performed on the endocrine system.

<i>Root operation</i>	Reposition
<i>Definition</i>	Moving to its normal location or other suitable location all or a portion of a body part
<i>Explanation</i>	The body part repositioned is aberrant, compromised, or may have been detached. If attached, it may or may not be detached to accomplish the repositioning.
<i>Examples</i>	Reposition undescended testicle Reposition an aberrant kidney

Exercise nineteen

1. (T) (F) Reposition procedures involve moving to its normal location, or other suitable location, all or a portion of a body part.
2. The body part character for the glomus jugulare is _____.
3. The five characters of the ICD-10-PCS code for open excision of pituitary gland are _____.
4. The seven character ICD-10-PCS code for open reposition of left adrenal gland is _____.
5. The seven character ICD-10-PCS code for open subtotal thyroidectomy (right lobe and isthmus) is _____.

Skin and Breast

Body part characters are assigned to the skin by general sites such as scalp, face, ear, back, abdomen, and buttock. Finger and toe nails, hair, and breast are also assigned body part characters. The skin includes all skin glands and ducts. Qualifiers include anatomical sites for transfer operations, "diagnostic" for excision procedures and three graft types for transplantation procedures.

Resection procedures are performed regularly on the breast.

<i>Root operation</i>	Resection
<i>Definition</i>	Cutting out or off, without replacement, all of a body part
<i>Explanation</i>	Involves the act of cutting with either a sharp instrument or other method such as a hot knife or laser
<i>Examples</i>	Total gastrectomy Pneumonectomy Total nephrectomy

Exercise twenty

1. (T) (F) The root operation resection is used only for operations which involve cutting out or off all of a body part.
2. The body part character for supernumerary breast is _____.
3. The seven character ICD-10-PCS code for release contracted skin right hand is _____.
4. The seven character ICD-10-PCS codes for right open radical mastectomy with resection of axillary lymph nodes are _____.
5. The seven character ICD-10-PCS code for excision malignant melanoma of skin of left lower leg is _____.

Subcutaneous Tissue

The subcutaneous tissue characters are assigned by general sites like the skin body parts. Tissue expanders, reservoirs, and vascular access devices are often placed in the subcutaneous tissue. The only qualifier is “diagnostic” for excision procedures.

Some extraction procedures are performed on the subcutaneous tissue.

<i>Root operation</i>	Extraction
<i>Definition</i>	Taking out or off all or a portion of a body part
<i>Explanation</i>	The body part is not completely dissected free but is pulled or stripped by the use of force (e.g., manual, suction, etc.) from its location
<i>Encompasses</i>	Abrasion, avulsion, strip
<i>Examples</i>	Tooth extraction Vein stripping Dermabrasion

Exercise twenty one

1. The device character for defibrillator generator is _____.
2. The body part character for subcutaneous tissue of the genitalia is _____.
3. The first four characters of the ICD-10-PCS code for insertion of tissue expander into subcutaneous tissue of scalp are _____.
4. The seven character ICD-10-PCS code for open insertion of cardiac pacemaker into subcutaneous tissue of chest is _____.
5. The seven character ICD-10-PCS code for open removal of infusion pump from subcutaneous tissue of abdomen is _____.

Exercise twenty two

Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the endocrine system, skin and breast and subcutaneous tissue.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Foreign body, right hand

POSTOPERATIVE DIAGNOSIS: Foreign body, right hand

OPERATION: Removal of foreign body, right hand

ANESTHESIA: Bier block

INDICATIONS:

The patient, four weeks prior to the date of the surgery, had punched a wall and suffered a foreign body embedded into his right hand, near the region of the fifth metacarpal.

PROCEDURE:

The patient was brought into the operating room and placed on the table in the supine position. A Bier block anesthesia was administered. The right hand was then prepped and draped in the the usual sterile fashion. The foreign body was palpated through the skin near the fifth metacarpal head.

An approximately 1 centimeter linear incision was made along the skin and carried down through the soft tissue. A hemostat was used to spread the soft tissue, and the foreign body was identified. A second hemostat was used to remove the foreign body, which was a long, thin, wire-like material. The wound was then thoroughly irrigated. The scar tissue that was present was removed using a curet, and any pockets of tissue that could be holding pus were explored, and no pus was identified within the hand. The wound was then closed using #5-0 nylon in a simple, interrupted fashion. A sterile dressing was applied to the wound. The tourniquet was deflated. The tourniquet time was 40 minutes. The estimated blood loss was minimal.

The patient was brought to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Bilateral breast ptosis and capsular contracture

POSTOPERATIVE DIAGNOSIS: Bilateral breast ptosis and capsular contracture

OPERATION: Open capsulotomy
Mastopexy
Breast implant exchange with textured McGhan implants.

INDICATIONS:

The patient is a 53-year-old female who had a mastopexy and breast implants placed almost 25 years ago. She presented to our clinic with complaints of fullness in the right side and some asymmetry in both breasts as well as ptosis or droopiness of both breasts with some heaviness. She requested correction of the deformity.

PROCEDURE:

The patient was placed on the operating table in the supine position after first having marked the patient in the standing position in the standard mastopexy fashion using the Wise pattern technique for mastopexy. The new nipple areolar complex was marked to be brought to the level of the inframammary fold which measured approximately 21 cms from the sternal notch. After marking the patient she was placed in the supine position on the operating table, given general endotracheal anesthesia and the arms were brought out at about 90 degrees. The chest was prepared and draped in the usual sterile fashion. Prior to making incisions about 10 minutes before the operation the subcutaneous tissues over the markings were infiltrated with 1:200,000 Epinephrine and 1/2 percent Lidocaine for vasoconstriction. The incisions were just marked slightly first and then the skin to be removed was excised. The old implants were then exposed by making an incision on the medial superior aspect of the breast and then the removal of the implants showed them to be the old type of implants with about a 2 cm base. There was no dissection within the implants. There was capsule on both sides, however the capsule on the left side was very minimal. On the right it was thick and had some degree of contracture. The capsule was then scored in several directions to release it and create a smooth pocket on the right side. A similar thing was done on the left side but very minimally. The new implants which were 210 ccs McGhan moderate profile implants were brought and placed in the pockets. The openings were then sutured at the level of the capsule and subcutaneous tissues with 3-0 Vicryl sutures. Finally, a small excision of fat was done from the lateral aspect of the breast as well as small amounts on the medial aspect of the breast, creating a slightly small breast. Then after the skin was closed in the standard fashion the symmetry was very good as well as was the projection. Closure was done with interrupted 3-0 Vicryl sutures at the subcutaneous dermal level and the skin was closed with a running 5-0 nylon for the nipple areolar complex and a 4-0 nylon for the remainder of the wound in a subcuticular fashion. Dry dressings were then applied on the wounds. The patient was then wrapped with Ace bandages. The patient tolerated the procedure well. The blood loss was very minimal and she was extubated on the operating table and brought to the recovery room in satisfactory condition.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Left ingrown toenail, great toe

POSTOPERATIVE DIAGNOSIS: Left ingrown toenail, great toe

OPERATION: Excision of left ingrown great toenail and excision of nail bed and matrix

INDICATIONS:

The patient has cerebral palsy and a procedure like this could have been done under local in the clinic, but his mental status would not permit this. For that reason, it was done here in the operating room.

PROCEDURE:

After the patient's left foot and proximal leg was prepped with Betadine, it was draped in the usual sterile fashion. A tourniquet on the high calf was inflated to 250 mm. of mercury. An incision starting 1 cm. proximal to the medial aspect of the great toenail nail bed and approximately 0.5 cm. or one-quarter of the width of the toenail was made longitudinally, brought down onto the nail and then the nail was incised longitudinally in line with the skin incision. The nail was separated from the nail bed and removed. Cultures were then taken and sent of the area that appeared to be infected on the medial left great toe. Next, the general matrix was excised in its entirety from the proximal nail bed and then the nail bed itself underneath the nail that was excised was excised. The nail bed was then further ablated using Phenol. The skin incision was closed using some #3-0 Dexon suture and the open area where the nail bed and nail were previously was packed with Iodoform gauze. The wound was dressed with 4 x 4's, Kerlex wrap and the tourniquet was then let down.

The patient tolerated the procedure well and went to the recovery room for postoperative recovery care.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Leaking tissue expander of right mastoid region.

POSTOPERATIVE DIAGNOSIS: Leaking tissue expander of right mastoid region.

OPERATION: Exploration and removal of tissue expander and replacement with new tissue expander.

INDICATIONS:

The patient is a 6-year-old boy who had an implant over the last four to six weeks for tissue expansion for a planned ear reconstruction. It was noted by parents today to be leaking. He was therefore admitted to surgery with plans for removal and replacement with a new tissue expander.

PROCEDURE:

The patient was taken to the operating room and placed upon the table and general endotracheal anesthesia was administered. The patient was prepped and draped in the usual sterile fashion. The tissue expander on the right side of the face was explored through the previous incision which lay above the expander in the area of the ear remnant. This was taken down and the tissue expander was removed along with the remote port, which was in the temporal region of the forehead. The tissue expander was examined and found to be leaking from its mid-portion, small leak from its mid portion. At this point the tissue expander was replaced with a new expander which was a McGhan textured 25 cc implant which was 6 x 2.5. To place this implant the pocket was expanded a little bit posteriorly. Hemostasis was obtained. The area was irrigated with antibiotic solution and the new expander was tested and placed in the pocket. Some 4-0 Vicryls were placed for deep closure in an interrupted fashion and then the skin was closed with a running 4-0 nylon. The tissue expander was tested prior to being placed and after being in place and found to be functioning appropriately. It was left with 28 ccs of saline. At the completion of the case, antibiotic ointment was placed. The mastoid dressing was placed. The patient was extubated and taken to the recovery room in satisfactory condition without apparent adverse effects to the anesthesia or the procedure.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Bilateral macromastia

POSTOPERATIVE DIAGNOSIS: Bilateral macromastia

OPERATION: Bilateral reduction mammoplasty. Resection right breast approximately 1,200 grams, left breast approximately 1,600 grams.

INDICATIONS:

This patient has symptomatic bilateral macromastia and the aforementioned weights were reduced from each side.

TECHNIQUE:

With the patient in the supine position, general anesthesia was administered. The airway was secured with an orotracheal tube. The arms were extended out onto arm boards. The patient underwent a standard prep and sterile drape which is customary for a breast procedure. The right and left breast were then infiltrated with 1:200,000 epinephrine solution.

Began on the right side following the preoperative markings, the inferior pedicle technique was utilized and the appropriate incisions for medial and flaps of the inferior pedicle were made. Complete disc flap dissection was carried out with the monopolar cautery unit and hemostasis was obtained with the same. The pedicle was nailed down to the appropriate size, excising wedges of skin both medially and laterally, as well as superiorly. Again meticulous hemostasis was undertaken and care was taken to make sure the skin flaps were of appropriate thickness and appropriate undermining and the pedicle was appropriate in size.

An identical procedure was then carried out on the left side. Again meticulous hemostasis was obtained throughout the procedure with the use of the monopolar cautery unit.

After this both breast incisions were tacked with silk stitches and the patient was then sat in the upright position. The placement of the nipples was marked out bilaterally. The patient was then placed back into a supine position and the skin above the nipple area was excised bilaterally and the nipples were brought forward.

All sutures were then taken down and the wound was sterilely irrigated with sterile saline solution. The stitches were then placed back in and then all wounds were closed. The horizontal vertical incisions were closed with a combination of #4-0 and #3-0 Vicryl sutures. The skin was closed with a running subcuticular Maxon suture. The areolar complex was closed with a combination of deep dermal Vicryl and half buried horizontal mattress sutures.

Drains were utilized bilaterally and brought out through the lateral aspect of each wound and they were seldom placed.

The patient tolerated the procedure well. There were no complications. The patient was sterile post surgically.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Full thickness burn to right foot

POSTOPERATIVE DIAGNOSIS: Full thickness burn to right foot

OPERATION: Split thickness skin graft from right thigh to dorsum of right foot

INDICATIONS:

The patient is a 67 year-old male who suffered a full thickness burn to his right foot. The patient has a history of cardiac disease and hypertension. The patient is a 100 pack year smoker who quit two years ago. The patient presents for elective debridement of wound and split thickness skin graft.

OPERATIVE DESCRIPTION:

The patient was taken to the operating room and placed supine on the operating table. After adequate IV sedation was provided, the right lower extremity was prepped and draped in the standard sterile fashion. 24 cc of 1% Lidocaine with Epinephrine was infiltrated subcutaneously to provide a local block in the area of the ulcer and the area of the donor site on the right side. Sharp debridement of the ulcer was carried out. The ulcer was approximately 4x5 cm in area in the lateral dorsum of the right foot. Debridement was carried down to viable tissue. A 4x5 cm split thickness skin graft was harvested from the upper aspect of the anterior right side. The graft was then meshed and applied to the right foot wound. The graft was secured with a running locked #3-0 chromic suture. Two centrally located chromic sutures were placed for further attention. Xeroform was placed over the top of the graft, and then a cotton bolster dressing was sutured with four silk sutures. Attention was placed to the donor site which was dressed with Xeroform and 4x4 gauze. The right lower extremity was then wrapped in Kerlix dressing. A posterior cast was applied to the right lower extremity mobilizing the ankle. The cast was wrapped with a 6 inch Ace bandage. Sponge and instrument counts were correct at the end of the case. The patient tolerated the procedure well and was transported to the recovery room, awake and in satisfactory condition. Complications none.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Right buttock mass

POSTOPERATIVE DIAGNOSIS: Sebaceous cyst, right buttock

OPERATION: Excision of sebaceous cyst, right buttock

PROCEDURE:

The patient was brought in the room and placed on the table in jack knife, prone position and a spinal block was used for anesthesia. She was prepped and draped in the usual sterile manner. A digital rectal examination was performed and we did not notice any communication between mass and rectum. Anoscopy was performed which showed no fistulas. There was a small posterior-lateral hemorrhoid on the right. The mass was palpated and a radial transverse incision was made over the mass. Using blunt and sharp dissection the top of the mass was identified and shown to be a sebaceous cyst. The sebaceous cyst was freed from the surrounding tissue using blunt dissection. The entire cyst was removed. Hemostasis was obtained and the skin was closed using 5-0 Dexon interrupted sutures. Estimated blood loss was 5 ccs. The patient was stable for the entire procedure. Duration of surgery was 20 minutes.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: Parathyroid adenoma.

POSTOPERATIVE DIAGNOSIS: Parathyroid adenoma.

OPERATION: Right parathyroidectomy.

INDICATIONS FOR PROCEDURE:

The patient is a 47-year-old female with multiple sclerosis and hypertension, and history of peptic ulcer disease, who presented with urinary tract infection and was admitted in early December of 1995, and on routine laboratory screening was found to have an elevated calcium level. The work up revealed that her phosphorus level was low, her parathyroid hormone was elevated and her 24 hour urine calcium level was elevated at over 500, placing her at risk for nephrolithiasis.

PROCEDURE:

The patient was informed of risks, benefits and indications for the procedure. She signed informed consent and was brought to the operating room where she was induced with general anesthesia.

She was prepped and draped in the usual sterile technique. A 6 cm transverse incision was made in the cervical region at the level of the cricoid cartilage. Sub-platysmal flaps were raised inferiorly and superiorly. The strap muscles were divided in the midline with Bovie electrocautery. The thyroid gland was identified and the strap muscles were dissected free from the anterior border of the thyroid gland on the right and left sides.

The right thyroid inferior lobe was explored and the recurrent laryngeal nerve was identified and preserved. Multiple frozen sections of various areas were sent and returned as reactive lymph nodes.

A fat pad that was discovered medial to the carotid artery and lateral to the trachea at the level of the mid thyroid, was excised and adenoma on gross examination was found. This was sent for permanent section. A normal superior right parathyroid gland was identified and preserved. The left side was explored and the superior and inferior parathyroid glands were also identified and preserved. The wound was copiously irrigated and suctioned and hemostasis was obtained.

The strap muscles were re-approximated in the midline with #3-0 Vicryl sutures, simple interrupted. The platysma was closed with simple interrupted #3-0 Vicryl suture. The skin was closed with #5-0 nylon simple interrupted sutures. The incision was dressed with Bacitracin ointment. No drains were placed.

The patient was awakened, extubated in the operating room and taken to unit #1 in stable condition.

ICD-10-PCS codes: _____

Muscles

Muscle sites are identified by location such as face, shoulder, hip, and calf rather than by specific muscle or action. Qualifiers are used to identify "diagnostic" for excision operations.

Revision operations are occasionally performed on the muscles.

<i>Root operation</i>	Revision
<i>Definition</i>	Correcting a portion of a previously performed procedure
<i>Explanation</i>	Redoing a portion of a previously performed procedure that has failed to function as intended. Revisions exclude the complete redo of the procedure and procedures to correct complications that do not require the redoing of a portion of the original procedure, such as the control of bleeding.
<i>Examples</i>	Revise hip replacement Revise gastroenterostomy

Exercise twenty three

1. Identify the revision procedure:
A. Fixing intestinal stoma
B. Repeat percutaneous transluminal coronary angioplasty
C. Repair of pericostomy hernia
D. Discission after cataract
2. The body part character for tongue muscles is _____.
3. The first four characters of the ICD-10-PCS code for reattachment of muscles of the left hand are _____.
4. The seven character ICD-10-PCS code for open muscle biopsy of right forearm is _____.
5. The seven character ICD-10-PCS code for open repair of right abdominal muscle with marlex mesh is _____.

Tendons

Tendon sites are identified by location such as shoulder, upper arm, trunk, and thorax, rather than by specific tendon. “Diagnostic,” for excision procedures, is the only qualifier.

Transfer operations are performed quite frequently on tendons.

Root operation Transfer

Definition Moving, without taking out, all or a portion of a body part to another location to take over the function of all or a portion of a body part

Explanation The body part transferred is not detached from the body. Its vascular and nerve supply remain intact. The body part whose function is taken over may or may not be similar.

Encompasses Transposition

Examples Nerve transfer
Tendon transfer

Exercise twenty four

1. **(T) (F) Reposition operations differ from transfer operations because in reposition operations the body part may be detached or not.**
2. **The body part character for the perineum tendon is _____.**
3. **The first five characters of the ICD-10-PCS code for open suture of flexor tendon of left hand are _____.**
4. **The seven character ICD-10-PCS code for open reattachment of tendon of right hand is _____.**
5. **The seven character ICD-10-PCS code for percutaneous right achillotenotomy is _____.**

Bursa, Ligaments, Fascia

Body part characters for the bursa, ligaments, and fascia are identified by location such as trunk, upper extremity, lower extremity, abdomen, thorax, and perineum. “Diagnostic,” for excision procedures, is the only qualifier.

Drainage operations are performed occasionally on bursa, ligaments and fascia.

Root operation Drainage

Definition Taking or letting out fluids and/or gases from a body part

Explanation The fluids or gases may be normal or abnormal

Encompasses Aspiration, evacuation, marsupialization, needle, puncture, rupture, stab, suction, tap, unbridle, undercut, window

Examples Bisect an ovary
Spinal cordotomy
Divide a patent ductus

Exercise twenty five

1. Identify the procedural term not encompassed in the root operation drainage:
A. Tap
B. Marsupialization
C. Evacuation
D. Pack
2. The body part character for right hip ligament is _____.
3. The first five characters of the ICD-10-PCS code for percutaneous drainage of shoulder bursa are _____.
4. The seven character ICD-10-PCS code for release of Volkmann's contracture by open fasciotomy is _____.
5. The seven character ICD-10-PCS code for open suture of ligament of left foot is _____.

Head and Facial Bones

Body part characters are assigned to skull, face, and neck bones distinguishing right and left sites. "Diagnostic," for excision procedures, is the only qualifier.

Removal operations are occasionally performed on the head and facial bones.

<i>Root operation</i>	Removal
<i>Definition</i>	Taking out or off a device from a body part
<i>Explanation</i>	May or may not involve invasive intervention
<i>Examples</i>	Remove a drainage tube Remove a cardiac pacemaker

Exercise twenty six

1. (T) (F) Removal operations always require invasive intervention to take out a device from a body part.
2. The body part character for right zygomatic arch is _____.
3. The first five characters of the ICD-10-PCS code for open removal of internal fixation device from skull are _____.
4. The seven character ICD-10-PCS code for open revision of repair with internal fixation device of skull is _____.
5. The seven character ICD-10-PCS code for open reduction of right maxillary fracture with wire is _____.

Upper Bones

Body part characters are assigned to the sternum, ribs, cervical and thoracic vertebrae and the right and left upper extremity bones. Characters are not assigned to the specific carpal bones. “Diagnostic,” for excision procedures, is the only qualifier.

Repair operations are frequently performed on the upper bones.

<i>Root operation</i>	Repair
<i>Definition</i>	Restoring to the extent possible, a body part to its natural anatomic structure
<i>Explanation</i>	An operation of exclusion. Most of the other operations are some type of repair but if the objective of the procedure is one of the other operations then that operation is coded. If none of the other operations are performed to accomplish the repair then the operation “repair” is coded.
<i>Encompasses</i>	Closure, correction, fix, reconstruction, reduction, reformation, reinforcement, restoration, stitch, suture
<i>Examples</i>	Tracheoplasty Suture laceration Herniorrhaphy

Exercise twenty seven

1. Identify the procedural term not encompassed in the root operation repair:
A. Closure
B. Trim
C. Correction
D. Reduction
2. The body part character for the left thumb phalanges is _____.
3. The first four characters of the ICD-10-PCS code for the debridement of open fracture of right humeral shaft are _____.
4. The seven character ICD-10-PCS code for open removal of bone growth stimulator of right radius is _____.
5. The seven character ICD-10-PCS code for open repair of right humeral shaft with intramedullary fixation device is _____.

Lower Bones

Body part characters are assigned to the lumbar vertebrae and sacrum. Specific characters are assigned to the right and left acetabulum, upper femur, femoral shafts, and lower femurs. The individual tarsal bones are not assigned specific body characters. "Diagnostic," for excision procedures, is the only qualifier.

Some replacement operations are performed on the lower bones.

<i>Root operation</i>	Replacement
<i>Definition</i>	Putting in or on a biological or synthetic material that physically takes the place of all or a portion of a body part
<i>Explanation</i>	The biological material may be living similar or dissimilar tissue from the same individual or non-living similar or dissimilar tissue from the same individual, another individual or animal. The body part replaced may have been previously taken out, previously replaced, or may be taken out concomitantly with the replacement.
<i>Examples</i>	Replace external ear with synthetic prosthesis Total hip replacement Replacement of part of the aorta Free skin graft Pedicle skin graft

Exercise twenty eight

1. (T) (F) The removal of the acetabulum and proximal femur is included in a total hip replacement operation.
2. The body part character for the right sacrum is _____.
3. The first five characters of the ICD-10-PCS code for left open patellectomy are _____.
4. The seven character ICD-10-PCS codes for lengthening of left tibia and fibula with bone bank bone graft are _____.
5. The seven character ICD-10-PCS code for open sequestrectomy of right tibia is _____.

Upper Joints/Lower Joints

Body part characters are assigned to specific upper and lower joints distinguishing right and left. The cervical, thoracic, thoracolumbar, lumbar, and lumbosacral vertebral discs are also assigned body part characters. Qualifiers include "diagnostic" for excision procedures and "multiple" for fusion operations.

Fusion operations are performed frequently on the joints.

<i>Root operation</i>	Fusion
<i>Description</i>	Joining together portions of an articular body part rendering the articular body part immobile
<i>Explanation</i>	Confined to joints
<i>Examples</i>	Spinal fusion Ankle arthrodesis

Exercise twenty nine

1. (T) (F) The root operation fusion is performed only on the upper and lower joints.
2. The body part character for the right sacroiliac joint is _____.
3. The first four characters of the ICD-10-PCS code for excision of semilunar cartilage of right knee are _____.
4. The seven character ICD-10-PCS codes for fusion of right ankle joint with right iliac bone graft are _____.
5. The seven character ICD-10-PCS code for total left knee replacement is _____.

Exercise thirty Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the muscles, tendons, bursa, ligaments, fascia, head and facial bones, upper bones, lower bones, upper joints and lower joints.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Ganglion, right wrist

POSTOPERATIVE DIAGNOSIS: Ganglion, right wrist

OPERATION: Excision ganglion, right wrist

ANESTHESIA: General

PROCEDURE:

The patient was brought to the operating room placed in the supine position, prepped and draped in the usual sterile manner. A 2 cm incision was made with a number 10 blade in the skin just over the patient's ganglion. The patient's ganglion was exposed using blunt dissection using a spreading motion with a Kelly. The ganglion was held onto by an Allis and isolated again using blunt dissection. The specimen was delivered by using a Bovie across the bottom, the root of the ganglion, and sent to the pathology department. The subcutaneous tissue was reapproximated using 3-0 PDS, and then the skin was reapproximated using interrupted 5-0 nylon. The sponge count was correct at the end of the operation. There was minimal blood loss, approximately 5 ccs. The duration of the surgery was approximately 1/2 hour. The patient was discharged to the recovery room in excellent condition.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Acute ulnar collateral ligament rupture, right thumb

POSTOPERATIVE DIAGNOSIS: Acute ulnar collateral ligament rupture, right thumb

OPERATION: Repair of ulnar collateral ligament, right thumb

INDICATIONS:

This 41 year old male is approximately 1-1/2 weeks status post abduction injury to his right thumb, where he sustained an apparent complete rupture of the ulnar collateral ligament to the metacarpal phalangeal joint, or the so called game keeper's thumb. He had presented to clinic, and was found to have greater than 30 degrees of radial deviation of the proximal phalanx on the metacarpal with radial stress, and was felt to have complete rupture of the ulnar collateral ligament. For this reason, exploration was carried out and repair of the ruptured ulnar collateral ligament undertaken.

PROCEDURE:

The patient was placed on the operating room table in the supine position. An axillary block was placed by the anesthesia service. After this, the right upper extremity was prepared for surgery in the usual manner with a proximal arm tourniquet over webril and Betadine prep. Sterile drapes were applied. During this period, the patient received one gram of Ancef intravenously. Upon completion of draping the right upper extremity was exsanguinated with a Martin bandage and tourniquet inflated to 250 mm. of mercury.

After this, a boat race incision was made over the ulnar aspect of the right first metacarpal phalangeal joint with care to protect the ulnar neurovascular bundle. This incision was carried dorsally and proximally along the ulnar border of the extensor pollicis longus. After this was done, the adductor aponeurosis was exposed and divided near its insertion on the extensor hood.

After this was done, dissection with the Stevens' scissors was used to separate the aponeurosis from the underlying collateral ligament structure and joint capsule. At this point in time, the ulnar collateral ligament was identified and found to be attenuated directly over the ulnar joint line with a fairly good distal stump. Since there was adequate soft tissue distally, it was felt that simple repair of this ligament would afford the best chance for healing and restoring stability to the joint.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Galeazzi's fracture dislocation of left radius

POSTOPERATIVE DIAGNOSIS: Galeazzi's fracture dislocation of left radius

OPERATION: Open reduction and internal fixation of left radius with plate and screws

INDICATIONS:

This is an 18 year old male gymnast who fell on his outstretched hand and sustained a Galeazzi's fracture dislocation of his left arm. He underwent a closed reduction in the emergency room and was undergoing neurovascular checks until the time of his operative procedure. He was noted to be neurovascularly intact and his compartments were firm but not tight.

PROCEDURE:

The patient was taken to the operating room suite and placed in a supine position where regional anesthesia was administered. Then the patient's left arm was prepped and draped in the usual sterile fashion. A twelve centimeter incision was made along the lower surface of the forearm between the mobile wad and the FCR. This was taken down through soft tissues achieving hemostasis with electrocautery. The fascia of the volar compartment was identified and opened. The brachio-radialis was retracted and the superficial branch of the radial nerve identified and protected underneath it. The radial artery was also identified underneath the layer of the superficial forearm muscles and was retracted medially. Small branches from the radial artery were cauterized. The flexor pollicis longus was identified distally and the pronator teres identified proximally and the fracture site identified between these two muscles and subperiosteal dissection was performed to expose the fracture site. The fracture site was cleared of hematoma as well as a small comminuted fragment and the reduction then obtained using clamps. Following this a seven-hole 3.5 dynamic compression plate was placed on the volar surface of the radius and held in place with plate-holding forceps. The first hole was drilled in neutral and after appropriate measuring and tapping a 3.5 cortical screw was placed and a compression technique was used for the second screw after appropriate drilling, measuring and tapping. The remaining four screws were then placed. An intraoperative x-ray confirmed acceptable reduction of the fracture. The wound was irrigated. The overlying muscle was placed over the radius and plate and then the subcutaneous tissue was closed with #2-0 Dexon. The skin was closed with staples. A sterile dressing was applied along with a volar long arm splint. The sponge, needle and instrument counts were correct. The fluid was approximately a 1,000 cc's of crystalloid. The tourniquet time was 83 minutes. The estimated blood loss was 25 cc's. The patient tolerated the procedure well and was awakened in the operating room and sent to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: External fixation of the right wrist fracture

POSTOPERATIVE DIAGNOSIS: External fixation of the right wrist fracture

OPERATION: Removal of external fixator

ANESTHESIA: General

COMPLICATIONS: None

SPECIMENS: External fixator to pathology

INDICATIONS:

This is a 17 year old male who two months ago underwent external fixation for a right wrist fracture. X-ray showed good callus formations now. The patient is admitted for removal of the external fixator.

PROCEDURE:

The patient was brought to the operating room and placed in a supine position. The patient was given mask general anesthesia. The right upper extremity was prepped and draped in a sterile fashion. A tourniquet was placed at 250 mm. of pressure.

The external fixator was removed using the appropriate wrench. The four pins were then removed manually, as well as with the drill. The wounds were then irrigated with an antibiotic solution, and a sterile dressing was then applied. A volar splint was then placed with the patient's hand positioned in neutral.

The tourniquet was then released with a tourniquet time of 12 minutes. The patient tolerated the procedure well with no complications. The estimated blood loss was less than 5 cc. The patient was then brought to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Right L5-S1 herniated disk

POSTOPERATIVE DIAGNOSIS: Right L5-S1 herniated disk

OPERATION:

1. Right L5-S1 partial laminectomy
2. Excision of herniated disk

INDICATIONS:

This is a 28 year old female who presents with severe right S1 radiculopathy and was shown to have on myelogram computerized tomography scan a herniation of her L5-S1 disk eccentric towards the right with amputation of the right S1 root. The indications, risks and potential complications of the surgery were explained to the patient. The patient understood and agreed to it.

PROCEDURE:

After induction of general anesthesia endotracheal intubation was performed. A Foley catheter inserted. The patient was positioned prone on the Wilson frame. The lower back was shaved, prepped and draped in the usual sterile fashion. A midline skin incision was then performed over the spinous processes of L5 and S1 after infiltrating the skin with Xylocaine one percent with Epinephrine. Self-retaining retractors were placed. The paravertebral muscles were incised on the right side over the spinous processes of L5 and S1 with the Bovie. A subperiosteal dissector was then performed with the Cobb Periosteal elevator and the muscle attachments cut with the blade. A Taylor self-retaining retractor was positioned lateral to the L5-S1 articular complex. A large Leksell was used to remove the excess soft tissue from the L5-S1 interspace. An angled curette was used to clean the ligamentum flavum insertion on the laminae. The small partial removal of the inferior aspect of the L5 lamina was performed with a Kerrison punch. The ligamentum flavum was then opened with a #15 blade and removed with a Leksell. The superior aspect of the S1 lamina was removed partially. Epidural fat was dissected. The dural sac and the S1 root were seen. The S1 root was bulged superiorly and medially. Dissection with a blunt hook in the axilla showed the presence of a significant subannular fragment of disk bulging into the S1 nerve root, mainly centered over the axilla. The nerve root retractor was placed on the dural sac which was pulled medially and the S1 root laterally and the annulus was opened with a #15 blade and a large fragment that had herniated subannularly was removed. The S1 root was then pulled medially with the rest of the sac and the extension of the opening was performed in the annulus to the outside. Further disk content was removed with a combination of down-biting rongeurs and curettes and Sterling rongeurs. When no more disk fragments could be removed the nerve root foramen at the S1 level was inspected and no fragments were seen. The undersurface of the dural sac was free of any residual compression. The incision was irrigated copiously with Bacitracin saline solution. The laminectomy defect was covered with a Thrombin-soaked square of Gelfoam. The muscle was then closed using #2-0 Dexon. The muscle was then infiltrated with Marcaine quarter percent and 15 cc's were used. The skin and the subcutaneous fat and subcuticular tissues were closed with interrupted #2-0 Dexon. Staples were placed on the skin. The sponge, needle and instrument counts were all correct at the end of the procedure. The blood loss was 50 cc's. No transfusion was given. A sterile dressing was applied. The patient was extubated and taken to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Post polio deformity, right foot

POSTOPERATIVE DIAGNOSIS: Post polio deformity, right foot

OPERATION: Tendo Achilles lengthening, right
Placement of short leg cast

INDICATIONS:

The patient is a 27 year old male, status post polio with deformity to the right foot. He has an equinovalgus deformity. It was decided that prior to doing any fusions, a tendo Achilles lengthening would be tried with casting and possible AFO in the future.

PROCEDURE:

The patient was taken to the Operating Room and given general endotracheal anesthesia without difficulty. The patient was then placed in a prone position with pads under his thorax. A tourniquet was placed on the proximal right lower extremity and the right lower extremity was prepped and draped in the usual sterile fashion. The tourniquet was then raised after the leg was elevated to 300 millimeters of Mercury. A 5 centimeter incision was made just medial to the Achilles tendon in its distal aspect. This was carried sharply through skin. The subcutaneous tissue was then dissected bluntly and the tendon sheath was opened longitudinally. A Z-type stab cut was made in the tendon with the distal portion being lateral and the proximal portion being medial. This coursed approximately 4 centimeters in length. The foot was placed into slight dorsiflexion, leaving a gap of approximately 1-1/2 centimeters. The longitudinal portions of the tendon were then sewn side to side using 0 Vicryl with figure of eight fashion suture. The tendon sheath was then closed using 3-0 Vicryl in figure of eight fashion suture. The subcutaneous tissue was closed using 3-0 Vicryl in interrupted buried suture fashion. The skin was then closed using a 5-0 nylon in interrupted horizontal mattress fashion. The wound was cleaned and dried and appropriately dressed. The leg, ankle and foot were then dressed with sterile Webril and a short leg fiberglass cast was placed, placing the foot in neutral. The tourniquet was released prior to placing the cast at 22 minutes of good return of distal capillary refill. Blood loss was minimal; there were no complications. The patient was taken to the recovery room in stable condition. The cast will be split postoperatively prior to the patient being sent home.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Right subacromial impingement

POSTOPERATIVE DIAGNOSIS: Right subacromial impingement

OPERATION: Right subacromial decompression

INDICATIONS:

Chronic impingement, without relief with conservative management

PROCEDURE:

After the right index mass was removed, attention was focused on the right shoulder. The patient was in the supine position, beach chair, with a five-pound sand bag between the shoulder blades.

A 4 centimeter incision from the lateral tip of the acromion to the coracoid process was made. This was carried down through sharp dissection to expose the anterior lateral aspect of the acromion. The deltoid was lifted over this span. The rotator cuff was inspected and noted to be intact. There was a large spike on the anterior inferior aspect of the acromion that was removed with micro-oscillating saw. The coraco-clavicular ligament was resected. The wound was then copiously irrigated after adequate decompression of the subacromial space was noted. The wound was copiously irrigated. Some #1 Polydek was used to reattach the deltoid to the acromion and distal clavicle. The subcutaneous tissue was closed with #2-0 Dexon and staples were used for the skin. Appropriate dressings were applied. The patient was placed in an immobilizer. The patient tolerated the procedure quite well. There were no complications. The patient was taken to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: Painful left bunion

POSTOPERATIVE DIAGNOSIS: Painful left bunion

OPERATION: Chevron bunionectomy, left great toe

INDICATIONS:

The patient is a 36 year old, athletic female with a history of a painful bunion on the left foot which was unresponsive to conservative management.

PROCEDURE:

The patient was brought into the operating room, and the left lower extremity was prepped and draped in the usual sterile fashion. The patient was administered general endotracheal anesthesia. The left lower limb was exsanguinated, and the tourniquet inflated to 350 mm of mercury. Prior to inflating the tourniquet, one gram of Ancef was given intravenously. A straight medial approach was made approximately six centimeters in length. The incision was carried subcutaneously with the Stevens tenotomy scissors with care taken to avoid the medial branch of the superficial peroneal nerve. The incision was carried down to expose the capsule, and then with the scalpel, the capsule was incised medially and then raised subperiosteally to expose the medial eminence. The medial eminence was excised with a reciprocating saw. Then, the chevron osteotomy was made with the apex at the center of rotation of the metatarsal head and the angle of the apex was approximately 60 degrees. The osteotomy was created and the distal fragment was moved laterally approximately 4 to 5 mm. A K-wire was placed from proximally to distally across the osteotomy site to hold the fragment in place. Care was taken to avoid entering the joint space. The wound was thoroughly irrigated. Check radiographs were obtained and showed an excellent reduction of the bunion and the subcutaneous tissues were injected with 7 cc of Marcaine and the capsule was closed using figure of eight interrupted suture of 2-0 Dexon, and the subcutaneous tissues were closed also with 2-0 Dexon. The skin edges were reapproximated with a 4-0 Dermalon subcuticular suture. A sterile dressing was applied and the tourniquet was released after 53 minutes. The patient tolerated the procedure well and was brought to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 9

PREOPERATIVE DIAGNOSIS: Leg length discrepancy secondary to congenital band syndrome

POSTOPERATIVE DIAGNOSIS: Leg length discrepancy secondary to congenital band syndrome

OPERATION: Leg lengthening procedure, right tibia, with application of EBI external fixator

INDICATIONS:

The patient was a 12 year old girl who has a leg length discrepancy of approximately 4 cm. secondary to congenital band syndrome. Most of the discrepancy was in the tibia.

PROCEDURE:

The patient was brought to the operating room under general anesthesia and prepped and draped in the usual sterile fashion. The patient was given Ancef intravenous prophylaxis.

Using fluoroscopic control, the proximal pins were placed parallel to the joint from the medial side of the tibia. Half pins were used. Three 150 mm. pins were used proximally, three 130 mm. pins used distally. The EBI fixator itself was used as a template. A small incision was made, and then bluntly dissected down to the periosteum. A drill was passed for each one, and each pin was hand inserted. After the pins were placed, an x-ray was taken to show adequate placement of the pins. Then, a proximal corticotomy was placed just distal to the grouping of proximal pins. The osteotomy was done with a power saw and completed with an osteotome.

We then showed that we were able to distract under fluoroscopy. We then made a distal fibular osteotomy, removing approximately 1 cm. of fibula through a lateral approach, bringing this down through the periosteum and removing it with a saw. The distal fibula was stabilized using a 4.5 cortical screw into the tibia. The wounds were irrigated out and closed using #2-0 and #3-0 Vicryl sutures. The periosteum and the lateral compartments were left partially open for drainage. A small Hemovac drain was placed by the tibial osteotomy. We then closed the skin using #3-0 subcuticular suture. Steri-Strips were used for the skin. Then, dressings were placed and a long leg posterior mold placed with the foot in neutral. Total tourniquet time was 90 minutes. There were no complications to the procedure.

ICD-10-PCS codes: _____

Urinary System

Body part characters are assigned to the kidney, bilateral kidney, right and left kidneys, right and left kidney pelvis and ureters, bladder, bladder neck and urethra. Qualifiers include anatomic sites for bypass operations, "diagnostic" for excision procedures, and three graft types for transplantation operations.

Reattachment procedures are not common, but the kidney may occasionally be reattached.

<i>Root operation</i>	Reattachment
<i>Definition</i>	Putting back in or on all or a portion of a body part
<i>Explanation</i>	Pertains only to body parts or appendages that have been severed. May or may not involve the re-establishment of vascular and nervous supplies.
<i>Encompasses</i>	Replantation
<i>Examples</i>	Reattach penis Reattach a hand Replant parathyroids

Exercise thirty one

1. (T) (F) Reattachment procedures may include the microscopic repair of severed vessels and nerves.
2. The body part character for left kidney pelvis is_____.
3. The seven character ICD-10-PCS code for change drainage device in left kidney is_____.
4. The seven character ICD-10-PCS code for open transplantation of allogeneic kidney, right is_____.
5. The seven character ICD-10-PCS code for fulguration of urethral tumor by transurethral approach using an endoscope is_____.

Female Reproductive System

Body part characters are assigned to the right and left ovaries, fallopian tubes, vulva, labia minora and majora. Characters are also assigned to these structures bilaterally. Other characters are assigned to uterine supporting structures, uterus, endometrium, cervix, cul-de-sac, vagina, clitoris, hymen, vestibular gland, female perineum, female pelvis and ovum. Qualifiers include anatomical sites for bypass and creation operations, "diagnostic" for excision operations.

Change operations are occasionally performed on the female reproductive system.

<i>Root operation</i>	Change
<i>Definition</i>	Taking out or off a device from a body part and putting back an identical or similar device in or on the same body part without cutting or puncturing the skin or a mucous membrane
<i>Explanation</i>	Requires no invasive intervention
<i>Example</i>	Change a drainage tube

Exercise thirty two

1. (T) (F) Change operations use Z for the fifth character.
2. The body part character for Bartholin's gland is_____.
3. The first five characters of the ICD-10-PCS code for an open complete vulvectomy are_____.
4. The seven character ICD-10-PCS code for changing a drainage device in the cervix is_____.
5. The seven character ICD-10-PCS code for suturing of traumatic injury of vagina is_____.

Male Reproductive System

Body part characters for the male reproductive system are identified as right, left and bilateral. Qualifiers include anatomic sites for bypass and creation operations and "diagnostic" for excision operations.

Division procedures are occasionally performed on the male reproductive system.

<i>Root operation</i>	Division
<i>Definition</i>	Separating, without taking out, all or a portion of a body part
<i>Explanation</i>	Separating into two or more portions by sharp or blunt dissection
<i>Encompasses</i>	Bisection
<i>Examples</i>	Bisect an ovary Spinal cordotomy Divide a patent ductus

Exercise thirty three

1. Identify the body system on which division procedures are performed:
A. Eye
B. Mouth and throat
C. Endocrine
D. Urinary
2. The body part character for prepuce is_____.
3. The seven character ICD-10-PCS code for bilateral open orchiectomy is_____.
4. The seven character ICD-10-PCS code for circumcision is_____.
5. The seven character ICD-10-PCS code for vasoligation, bilateral percutaneous intraluminal device is_____.

Anatomical Regions

Body regions such as head, face, neck, and back are assigned fourth characters. The cranial cavity, right and left pleural cavities, and abdominal and pelvic cavities are also body region characters. Anatomical regions are used for operations that involve structures which go across multiple body systems.

Creation operations are only performed on the anatomical regions body system.

<i>Root operation</i>	Creation
<i>Definition</i>	Making a new structure that does not physically take the place of a body part
<i>Explanation</i>	Confined to sex change operations where genitalia are made
<i>Encompasses</i>	Formation
<i>Examples</i>	Create an artificial vagina in a male Create an artificial penis in a female

Exercise thirty four

1. The root operation creation appears in only the _____ body system.
2. The body part character for pelvic cavity is_____.
3. The seven character ICD-10-PCS code for inspection of the abdominal cavity endoscopically is _____.
4. The seven character ICD-10-PCS code for an open reattachment of the right upper jaw is_____.
5. The seven character ICD-10-PCS code for creation of an artificial vagina in a male using tissue is_____.

Exercise thirty five

Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the urinary, female reproductive, male reproductive and anatomical regions systems.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Left nephrolithiasis

POSTOPERATIVE DIAGNOSIS: Left nephrolithiasis

OPERATION: Left ESWL

FINDINGS:

This patient has a stone in the lower pole measuring 5mm and another one in the upper pole measuring 3mm requiring ESWL.

PROCEDURE:

With the patient having been identified, under satisfactory IV sedation and using the MFL 5000, 1000 shocks were delivered to the stone in the lower pole and 800 shocks were delivered to the stone in the upper pole with change in shape and density of the stone indicating fragmentation.

The patient tolerated the procedure and anesthesia well. His urine just turned slightly bloody and there was only a small red spot overlying his left kidney. He was taken to PACU in satisfactory condition.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Right proximal ureteral stone

POSTOPERATIVE DIAGNOSIS: Right proximal ureteral stone

OPERATION: Right open ureterolithotomy

ANESTHESIA: General endotracheal

INDICATIONS:

The patient is a 34-year-old white male with the presentation of a right renal colic, who had undergone cystoscopy and right ureteral stent placement two days prior with an attempted extracorporeal shock wave lithotripsy on the right ureteral stone without success, who presents at this time for alternative therapy and open stone removal.

PROCEDURE:

The patient was prepped and draped in the sterile fashion after he was placed in the right flank up position, rotated medially. A dorsal lumbotomy incision was performed, slightly oblique from the inferior edge of the 12th rib towards the superior iliac spine. The incision was extended down to the subcutaneous tissues, and the posterior lamella was incised, exposing the latissimus dorsi. After further exposure, the medial lamella was identified and incised, exposing each sacral spinalis as well as the quadratus lorum. The transversalis fascia was then seen, identified and incised, exposing Gerota's fascia. Once entered, this allowed for palpation of the proximal ureteral stone. Two Babcock clamps were placed, both proximally and distally, to the region of the stone, and a ureterotomy was performed in a longitudinal fashion for approximately 2 centimeters on top of the palpated calcification. The stone was ellipsed out of the ureter after being teased away from the mucosa to which it was adherent. Interrupted closure was then performed with 5-0 Dexon followed by removal of the Babcock clamps, and identification of the ureteral stent still in a good position. After adequate hemostasis was obtained with electrocautery, the wound was closed in two layers, the medial lamella as well as the posterior lamella with interrupted 0-Dexon. The wound was irrigated, and the skin was stapled. The patient tolerated the procedure well. The duration of the procedure was 90 minutes.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: 1. Renal failure
2. Urinary retention

POSTOPERATIVE DIAGNOSIS: 1. Renal failure
2. Urinary retention

OPERATION: Suprapubic cystostomy

PROCEDURE:

Once the plastic surgeons were finished with their debridement we prepped and draped the patient in the usual sterile fashion. The patient's bladder was first filled with approximately 300 cc's of saline. This was done to aid us in finding the bladder once we made our incision. A Foley catheter was left in the bladder and clamped for the first part of the procedure. We then anesthetized the area in the patient's lower abdomen with one percent Lidocaine. One percent Lidocaine was used throughout the procedure to anesthetize each new layer that we encountered. A vertical small lower midline incision was made. We then dissected through the subcutaneous fat to expose our tissue beneath. We continued our dissection and exposed the rectus fascia. This was incised using a Bovie. We then bluntly dissected through the rectus muscle to expose the perivesical tissue. This perivesical tissue and fat were bluntly stripped from the bladder. Once the bladder was identified, we put two stay sutures of #0 chromic on each side of the bladder. We then used a #22 gauge needle to localize the bladder. This was placed into the bladder and yellow urine was easily aspirated. Once this was done we made a three centimeter vertical incision in the bladder. The urine was sucked out of the bladder and we grabbed each side with an Allis forceps. Once this was done we obtained hemostasis and then began to place our cystostomy tube. A #24 French Malecot tube was then brought into the field and readied for placement. A separate stab wound was made in the left lower quadrant and the tube was brought near our cystotomy site. Once this was done we made a quick inspection of the bladder using our finger to feel for any stones or any other abnormality in the bladder. We did not find any abnormalities and made a separate stab incision in the bladder to bring our catheter through. Once this was done the catheter was brought through into the bladder. Hemostasis was obtained. We then began our closure of our cystotomy. This was done in two layers. The inner layer was continuous suture using #2-0 chromic on the mucosa of the bladder. Once this was done the outer layer of closure was done using #3-0 chromic Lembert stitches. Once this was done we irrigated the bladder to check for a leak. The bladder was irrigated and aspirated several times through the catheter and there was no leak noticed. We then fashioned a purse-string suture of #0 chromic around the catheter as it came out our stab incision on the bladder. Hemostasis was again obtained at this point and we began closure of the abdomen. The rectus fascia was closed with interrupted figure-of-eight #0 Maxon sutures. Once this was done the wound was irrigated and dried. The subcutaneous tissue was closed with interrupted #3-0 Vicryl sutures. Hemostasis was obtained and the skin was closed using skin staples. The catheter was affixed at the skin using a #2-0 silk suture. The patient tolerated the procedure well and there were no other complications. The estimated blood loss was 30 cc's. Drains, #24 French alecot catheter. The patient was brought to the recovery room in good condition.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Cervical dysplasia

POSTOPERATIVE DIAGNOSIS: Cervical dysplasia

OPERATION: Colposcopy

FINDINGS:

Colposcopy was done which revealed pseudo-white areas at 2:00 and 6:00 o'clock with abnormal cells and irregular borders noted on both. Abnormal cells noted at the 6:00 o'clock area.

PROCEDURE:

The patient was brought to the operating room, placed in the dorsal lithotomy position. She was prepped and draped in the usual sterile manner. A colposcopy was done which revealed the above-mentioned findings. The cervix was painted with Lugol solution to delineate the squamocolumnar junction. The laser was set at a 1,000 watts per centimeter square power density and the outline of the area to be ablated was outlined. The area was then ablated to a depth of approximately 7mm on the periphery and an additional 3-4mm on the endocervix. Hemostasis was achieved at the end of the procedure. There were no intraoperative complications. The sponge and instrument counts were correct times three. At the end of the procedure the patient was moved to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: 1. Vaginal intraepithelial neoplasia
2. Cervical dysplasia

POSTOPERATIVE DIAGNOSIS: 1. Vaginal intraepithelial neoplasia
2. Cervical dysplasia

OPERATION: Laser ablation of the cervix and vagina

PROCEDURE:

The patient was brought to the operating room where she was given some intravenous sedation. The patient was placed in the dorsal lithotomy position and a dark speculum was then placed into the vagina. The cervix and vagina were cleansed with acetic acid and the colposcope was used to visualize the cervix. There was a large transformation zone with ectopy on the cervix. The entire transformation zone was clearly visualized. There was some aceto-white areas on the cervix at approximately two o'clock and also on the cervix over at approximately eleven o'clock with no punctation or mosaicism visualized. Subsequently, the cervix and vaginal fornix were stained with Lugol's Iodine and there was some non-staining areas visualized in the right vaginal fornix. Initially a spot size of two millimeters was used at 40 watts of a tenth of a second laser setting and the non-staining area in the vaginal fornix where also previous biopsies had been taken confirming the VAIN. This area was ablated initially circumscribing the area and then lasering the area. Subsequently the transformation zone of the cervix was outlined and encompassed using 1,000 watts per meter square continuous. It was outlined by using the 40 watt continuous at two millimeters. That was 1,000 watts per centimeter square was outlined to include the entire transformation zone and the cervix was ablated in quadrants proceeding in a clockwise direction down to a depth of approximately four millimeters to five millimeters and the transformation zone. Subsequently the cervix os was identified with a Q-tip and a circumferential area of that was taken down using a pulsatile mode of 40 watts and this was taken down approximately one millimeter to two millimeters more to a depth of approximately six millimeters to seven millimeters in total. There was no bleeding and a Monsel's solution was applied to the laser areas on the cervix and the instruments were removed from the vagina and the patient was taken to the recovery room in stable condition. The patient tolerated the procedure well. There were no complications.

ICD-10-PCS codes: _____

CODING EXERCISE 6

PREOPERATIVE DIAGNOSIS: Urinary incontinence and incomplete bladder emptying due to prostatic enlargement

POSTOPERATIVE DIAGNOSIS: Urinary incontinence and incomplete bladder emptying due to prostatic enlargement

OPERATION: VaporTrode-assisted transurethral resection of the prostate

PROCEDURE:

Under general anesthesia, with the patient in the dorsal lithotomy position, he was prepped and draped in the usual manner.

The urethra was lubricated with KY jelly, and Van Buren sounds of 26, 28, and 30 French were passed. A 28 resectoscope sheath was passed per urethra. The bladder had been previously cystoscoped, and once again findings of heavily trabeculated bladder were noted, and the obstructing prostate with lateral lobes in apposition through the length of the gland.

Began to use the VaporTrode roller and treated first the floor area of the prostate, then the right lateral area, the roof or anterior aspect of the prostate, and finally the left lateral lobe of the prostate gland. It seemed to debulk quite well. We then switched to loop and removed the residual tissue, carefully maintaining hemostasis. We then switched back to the VaporTrode and finished up the resection. The verumontanum was intact. Bladder neck appeared to be wide open. Prostatic chips were irrigated from the bladder and prostatic fossa. A catheter was inserted. Initially the catheter did not function well, so it was replaced. We finally got a catheter that functioned satisfactorily. Returns were clear.

The patient's vital signs were stable, and he was taken to the recovery room in good condition.

ICD-10-PCS codes: _____

CODING EXERCISE 7

PREOPERATIVE DIAGNOSIS: Necrotizing fasciitis left buttock

POSTOPERATIVE DIAGNOSIS: Necrotizing fasciitis left buttock

OPERATION: Debridement of left buttock wound of necrotic skin, subcutaneous tissue and fascia

INDICATIONS:

The patient is a 25-year-old male with history of SLE who was found to have a left buttock abscess. The patient debrided initially on the day of admission. Since then the patient has considered a trip to the OR for further debridement of wound.

PROCEDURE:

The patient was brought to the OR and placed on the table in the supine position. Monitors were placed and in the left lateral decubitus position a one-shot spinal was administered by anesthesia without complications. The patient was put in a prone jack-knife position. The area of the left buttock and proximal left thigh was prepped and draped in the usual sterile fashion. Utilizing Bovie electrocauterization by electric Bovie, necrotic tissue was taken off the superior and medial aspect of the wound, approximately 2cm in width from the skin edge. This was carried utilizing the Bovie through the necrotic subcutaneous tissue to include the fascia down to healthy muscle and muscle tissue. Upon completing this excision, healthy skin, subcutaneous tissue, fascia, and muscle remained. The rest of the wound was debrided of necrotic area utilizing the Bovie knife as well as a curet. At the completion of the procedure the entire wound surface appeared to be healthy and bleeding, without evidence of residual necrotic tissue. The wound was sterilely irrigated and excellent hemostasis obtained utilizing Bovie cauterization. The wound was packed utilizing Betadine-soaked gauze. Sterile dressing was applied. The patient tolerated the procedure well. Estimated blood loss 25 cc. Intravenous fluids 400 cc of crystalloid and two units of packed red blood cells. The patient received two units of packed red blood cells because hemoglobin preoperatively was 5.7. Specimen: #1-Necrotic skin, subcutaneous tissue and fascia. #2-Tissue culture. Drains none. Complications none. Condition stable. Disposition: The patient to PACU for recovery in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 8

PREOPERATIVE DIAGNOSIS: Mediastinal adenopathy

POSTOPERATIVE DIAGNOSIS: Mediastinal adenopathy

OPERATION: Mediastinoscopy and biopsy.

INDICATIONS FOR PROCEDURE:

The patient is a 41-year old male with a history of mediastinal adenopathy who underwent CT scan of the chest, which again showed paratracheal adenopathy.

PROCEDURE:

The patient was taken to the operating room and placed in the supine position on the table. After the successful induction of general endotracheal anesthesia, the patient's neck and chest area were prepped and draped in the usual sterile fashion. A roll was placed between the shoulders and a transverse incision was made approximately one finger breadth above the suprasternal notch. Dissection was carried down to the skin using a skin knife and further through the fascial layers using Bovie coagulation cautery. The midline was identified and this was followed down to the pretracheal fascia which was again incised using Bovie coagulation cautery. Using blunt finger dissection, a plane was gently created in the anterior space of the trachea and a mediastinoscope was placed. Using sucker dissection, a large lymph node was identified just to the right of the trachea, beneath the manubrium. Using a mediastinal biopsy forceps, multiple biopsies were taken for acid-fast bacilli, anaerobic and aerobic culture as well as gram stain and sent to pathology department for frozen section which came back as consistent with granulomatous inflammation.

Similarly, tissue was sent for permanent section. Hemostasis was achieved using gentle compression and the wound was irrigated. The strap muscles were approximated using #00 Dexon stitch. The platysma layer was closed using interrupted #000 Dexon stitch and the skin was closed using a running subcuticular #4-0 Dexon stitch. The patient had minimal blood loss and received 700 cc of crystalloid on the operating room table. The patient was awakened, extubated in the operating room and taken to the recovery room in satisfactory condition, having tolerated the procedure well. The sponge, needle and instrument counts were reported as correct.

ICD-10-PCS codes: _____

Upper Extremities/Lower Extremities

In general, body part regions assigned to the upper and lower extremities include multiple constituent parts. In the upper extremity, the shoulder, elbow, and wrist regions, as well as hands, fingers, and thumbs are assigned specific body part characters. The right and left forequarters are also assigned to the upper extremity. The body part characters assigned to the lower extremity include the knee and ankle regions, as well as the upper and lower legs, feet, and toes. The inguinal and femoral regions are also assigned to the lower extremities body system. Qualifier characters give the specificity of the detachment such as complete, high, mid, and low.

The root operation, Control, is frequently used in the Upper and Lower Extremities and describes procedures with the objective of stopping bleeding resulting from a surgical procedure.

Root operation Control

Description Stopping, or attempting to stop, postprocedural bleeding

Explanation Confined to postprocedural bleeding and limited to the Anatomical Regions, Upper Extremities and Lower Extremities Body Systems.

Examples Control of postprostatectomy bleeding
Control of postpneumonectomy bleeding

The root operation, Detachment, is used only in the Upper and Lower Extremities and describes amputations. Qualifier characters give the specificity of the detachment procedure such as complete, high, mid, and low.

Root operation Detachment

Description Cutting off all or a portion of an extremity

Explanation Pertains only to extremities. The body part determines the level of the detachment. All of the body parts distal to the detachment level are detached.

Encompasses Amputation

Examples Shoulder disarticulation
Below knee amputation

Exercise thirty six

1. The body part character for right forequarter is _____.
2. The seven character ICD-10-PCS code for complete amputation of the right foot is _____.
3. The seven character ICD-10-PCS code for open repair of right femoral region is _____.
4. (T) (F) Detachment operations pertain only to extremities.
5. The seven character ICD-10-PCS code for control of postprocedure bleeding of the right shoulder region using open approach is _____.

Exercise thirty seven

Assign the correct ICD-10-PCS codes to the following operative reports involving surgery on the upper and lower extremities.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: Left fifth toe Ray amputation

POSTOPERATIVE DIAGNOSIS: Left fifth toe Ray amputation

OPERATION: Left fifth toe Ray amputation

INDICATIONS:

Osteomyelitis of the left fifth proximal phalanx of the lower extremity.

PROCEDURE:

The patient was given IV sedation, placed in the supine position on the operating table and the patient's left lower extremity was prepped up to the mid tibial area and draped accordingly. The patient then underwent a local block to the left foot and adequate anesthesia was obtained in this area. A semi-elliptical incision was made around the base of the left toe with a #15 blade without difficulty. Careful sharp dissection was made down to the bone and care was taken to avoid the fourth toe's neurovascular bundle. There was obvious osteomyelitis of the proximal phalanx of the fifth toe and the toe itself was disarticulated, the proximal head of the fifth lower extremity metatarsal without difficulty. Specimens were sent to Pathology for culture and examination. Next both sharp and blunt dissection were used to adequately expose the head of the fifth metatarsal, and this was done without difficulty. A small rongeur was then used to remove the head of the fifth metatarsal and soft spongy bone was felt beneath this area. Examination of the patient's x-rays revealed that there was an area of cortical lucency at the base of the head of the fifth metatarsal and the decision was made to extend the amputation to the midshaft of the fifth metatarsal and this was done without difficulty using a rongeur. The wound was then flushed with normal saline and bleeding viable tissue was observed throughout the wound. There was adequate flap coverage of the remaining fifth metatarsal. At this time a wet lap was used to pack the wound and this was covered by a dry 4 x 4 and dressed with a sterile Kling dressing. The patient was then found to be comfortable, awake, and was transported to the Postanesthesia Care Unit without difficulty, problems or pain at the time.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Left inguinal hernia

POSTOPERATIVE DIAGNOSIS: Left inguinal hernia

OPERATION: Left inguinal hernia repair

PROCEDURE:

The patient was taken to the operating room and placed in the supine position, cleaned and draped. The procedure was done under spinal anesthesia.

An incision extending on the skin from the internal to the external inguinal ring was made. The external oblique aponeurosis was exposed. The external oblique aponeurosis was then excised from the internal ring, extending to the external ring. The contents of the inguinal canal were then visualized and the contents of the spermatic cord were separated from the hernia sac by blunt dissection.

The hernia sac was then ligated at the internal ring with non-dissolving sutures. A hernia repair was then performed. The internal oblique fascia was sutured in interrupted stitches to the ilio-pubic fascia. The repair was done without excessive tension being placed on the tissue. The spermatic cord was then returned to its anatomical position.

The external oblique aponeurosis was then repaired in interrupted sutures. Complete hemostasis was obtained, and the skin closed using dissolving subcuticular sutures. The patient was sent to the recovery room and discharged in good condition the next day.

ICD-10-PCS codes: _____

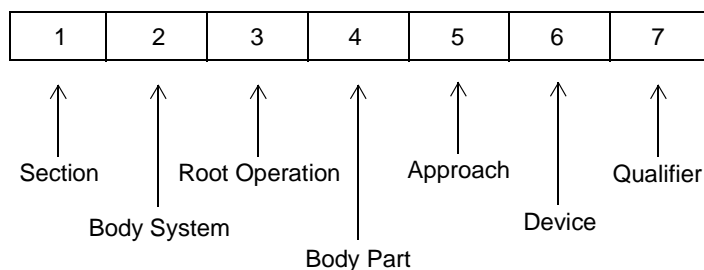
Chapter 4

Obstetrics Section

This chapter describes the Obstetrics section. Root operations and body parts specific to the Obstetrics section are defined. Practice exercises and operative reports are included.

Contents	Obstetrics Section 4.1
	Characters 4.3
	<i>Abortion</i> 4.3
	<i>Delivery</i> 4.3
	Exercise one 4.4
	Exercise two 4.4

Obstetrics Section

Characters

The seven characters for the Obstetrics section have the same meaning as in the Medical and Surgical section. The section character is number 1 for obstetrics. Only one body system is designated in the Obstetrics section - 0 for pregnancy. Nine root operations are used in the Obstetrics section and have the same meaning as in the Medical and Surgical section: change, drainage, insertion, inspection, removal, repair, reposition, resection and transplantation. Two additional root operations are included in the Obstetrics section:

<i>Abortion</i>	Artificially terminating a pregnancy
<i>Delivery</i>	Assisting the passage of the products of conception from the genital canal

The Obstetrics section includes only operations performed on the products of conception. Operations on the pregnant female such as episiotomy are coded in the Medical and Surgical section. A cesarean section is not an additional root operation; it is a resection (i.e., cutting out all of a body part).

There are three body parts for the Obstetrical section:

- ◆ Products of conception
- ◆ Products of conception, retained
- ◆ Products of conception, ectopic

The term products of conception, refers to all components of the pregnancy including the fetus, embryo, amnion, umbilical cord and placenta. The products of conception are not differentiated based on age, so use of the terms, zygote, embryo or fetus, or specification of the trimester of the pregnancy is not part of the procedure. This information is obtained from the diagnosis code.

The approaches for the Obstetrics section are defined the same as in the Medical and Surgical section. The device character has the same definition as in the Medical and Surgical section. Devices include laminaria, abortifacient, monitoring electrodes and device NEC. Qualifiers are used to specify type of delivery (e.g., low forceps, vacuum, version), type of cesarean section (e.g., classical, low cervical), the type of fluid taken out during a drainage (e.g., amniotic fluid, fetal blood) and repair sites.

Exercise one

1. The root character for abortion is _____.
2. The body part character assigned to a retained placenta is _____.
3. The seven character ICD-10-PCS code for terminating a pregnancy with laminaria is _____.
4. The seven character ICD-10-PCS code for delivery by vacuum extraction is _____.
5. The seven character ICD-10-PCS code for peritoneal tap of fetus in utero is _____.

Exercise two

Assign the correct ICD-10-PCS codes to the following operative reports.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: 7+ week intrauterine pregnancy with maternal dwarfism

POSTOPERATIVE DIAGNOSIS: 7+ week intrauterine pregnancy with maternal dwarfism

OPERATION: Suction curettage

PROCEDURE:

The patient was brought to the operating room where she was given some intravenous sedation. She was placed in the dorsolithotomy position. The perineum was prepped and draped in the usual sterile fashion. The bladder was emptied with a straight catheter.

Bimanual examination revealed the cervical os to be closed, and the uterus to be approximately six to eight weeks in size, sharply anteverted and deviated to the left. A bivalve speculum was placed in to the vagina, and the anterior lip of the cervix was grasped with a long Babcock clamp. Local anesthesia with a 1% Lidocaine injection approximately 10 cc was injected circumferentially at 3, 6, and 9 o'clock for a total of 10 cc. The cervical os was then dilated to a #24 Pratt dilator. A #8 suction curette was used to curette the endometrial cavity. Subsequently, this was followed by a gentle sharp curettage to insure full evacuation of the contents of the uterus. The instruments were then removed from the cervix. There was good hemostasis noted at the cervix and at the cervical os.

The patient was subsequently taken to the recovery room in stable condition. She tolerated the procedure well and there were no complications.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Twin pregnancy at 33 weeks with twin A vertex presentation and twin B breech

POSTOPERATIVE DIAGNOSIS: Twin pregnancy at 33 weeks with twin A vertex presentation and twin B breech

OPERATION: Normal spontaneous vaginal delivery with an episiotomy and a low-transverse cesarean section with vertical extension done through a vertical skin incision

FINDINGS:

Twin A born at 8:41, normal spontaneous vaginal delivery, with Apgars of 8 and 9, and twin B born at 8:50 with Apgars of 6 and 8 through a cesarean section

PROCEDURE:

The patient was taken to the operating room when she was completely dilated, and then started pushing and a midline episiotomy was done. Twin A, a baby girl, was delivered at 8:41 without any problems. The cord was doubly clamped and twin A was given to pediatrics. Then, we examined the uterine cavity, and we found arm presentation. Therefore, at this time, we proceeded with cesarean section done through a longitudinal skin incision.

The abdomen was entered in the usual fashion. A bladder flap was created, and then, a low segment transverse incision was made on the uterus. The uterine cavity was explored, and we saw that the baby was transverse back down with the head in the right upper quadrant. Therefore, at this time, we decided to go ahead and extend our low segment transverse cesarean section about 4 centimeters up into the fundus of the midline area. We delivered without any problems our second baby. The cord was doubly clamped, and the baby was given to pediatricians for resuscitation. Then, the placenta was removed manually. The uterus was emptied of membranes and clots.

We closed the uterus in one layer. We observed the uterine incision for any evidence of bleeding, which was not present. Then, we irrigated the abdomen.

After we irrigated the abdomen and removed all of the clots, we again inspected our uterine incision, which was dry. Therefore, we closed our abdominal incision. The fascia was closed with #0 Vicryl, and the skin with staples. We expressed the uterus of any clots, and repaired the midline episiotomy.

The patient tolerated the procedure well and was transferred to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Retained placenta

POSTOPERATIVE DIAGNOSIS: Retained placenta

OPERATION: Manual extraction of placenta and sharp curettage

PROCEDURE:

The patient was brought to the operating room where anesthesia was administered. The patient was then placed in the dorsal lithotomy position, prepped and draped in the usual sterile fashion. Exam under anesthesia at this time revealed a dilated cervix and placentas were palpated secondary to previous vaginal delivery of twins with one placenta tightly adherent to the posterior fundal wall of the uterus. At this time, portions of the two placentas were then gently extracted via manual extraction. While the first placenta appeared to be completely intact, the second placenta was noted to have areas missing. At this time, a bivalve speculum was placed in the vaginal vault. The anterior cervix was carefully grasped using a ring forceps and a sharp banjo curette was then used in systematic fashion to carefully curette the lining of the uterine cavity. Curettage was performed in a systematic fashion until all side walls felt gritty. At this time, a moderate amount of placental tissue was obtained and the patient was noted to have decreased vaginal bleeding. At no time throughout this procedure was the uterus felt to be perforated. The fundus was noted to be firm and decreased vaginal bleeding was once again noted. The cervix was noted to be completely intact, no vaginal lacerations were noted. The ring forceps was then removed from the anterior lip of the cervix, sterile speculum was then removed. The patient tolerated the procedure well and was sent to the recovery room in stable condition. Complications were none. Specimens were sent to pathology.

ICD-10-PCS codes: _____

CODING EXERCISE 4

PREOPERATIVE DIAGNOSIS: Right ectopic pregnancy

POSTOPERATIVE DIAGNOSIS: Same and desires permanent sterility

OPERATION: Salpingectomy, left tubal cautery

FINDINGS:

Right tube with ectopic pregnancy. No evidence of rupture. Left tube appeared normal. Bilateral ovaries appeared normal. Uterus appeared normal.

PROCEDURE:

The patient was brought to the operating room after appropriate consent was obtained. This patient specifically asked for tubal cautery on the remaining tube for permanent sterility. A general anesthetic was administered. The patient was then prepped and draped in the usual sterile fashion from above to below. A HUMI uterine manipulator was placed in the cervix and a Foley catheter was placed.

The attention was then directed to the abdomen where a 10mm incision was made in the subumbilical region and a Veress needle inserted. While lifting up on the abdominal wall intraperitoneal location was confirmed by the hanging drop technique and low intra-abdominal pressures. Approximately 3 liters of CO₂ gas were instilled and the Veress needle was removed. The 10mm laparoscopic trocar was inserted without complications. The laparoscope was inserted through the trocar and the site of entry was visualized. No evidence of perforation of any structures was noted. The pelvis was visualized. A small amount of free slightly bloody fluid was noted in the cul-de-sac. The patient was positioned in the Trendelenberg position and the right tubal pregnancy was noted.

A second 10mm trocar was placed in the right lower quadrant under direct visualization without complications. A small amount of blood was noted around the trocar site intraperitoneally. The right tube was grasped with a grasper and an attempt was made to place an endo-loop suture twice around the distal segment of tube. However, the endo-loops were nonfunctional and this attempt was aborted. The Kleppinger and endo-shears were then utilized to alternately cauterize and cut the tube from the proximal end across the mesosalpinx for removal. When the tube was successfully freed it was removed through the #10mm trocar with large spoon type forceps in several segments. The previous site was noted to have a small amount of bleeding which was cauterized with Bovie and Kleppinger cauterization.

Attention was then directed to the left tube which was easily grasped with an atraumatic forceps and Kleppinger cauterized at two different sites for a total of four areas of cautery. The peritoneum was copiously lavaged with warm normal saline and all fluid was removed. Previous site was examined and found to be hemostatic.

All instruments were removed and the incisions closed with #-0 Vicryl suture at the 10 large port and then a #3-0 subcutaneous Dexon at the skin. HUMI uterine manipulator and Foley were removed. The patient tolerated the procedure well and was transferred to the recovery room in stable condition.

ICD-10-PCS codes: _____

CODING EXERCISE 5

PREOPERATIVE DIAGNOSIS: Missed abortion

POSTOPERATIVE DIAGNOSIS: Missed abortion

OPERATION: Dilation and curettage

PROCEDURE:

The patient was prepped and draped in the usual sterile fashion and placed in the dorsolithotomy position. Using a speculum it was inserted into the vagina to expose the cervix. Using a single toothed tenaculum it was placed on the anterior portion of the cervix and a paracervical block was then given at 4 and 8 o'clock respectively with Lidocaine. Using a dull curette the interior of the uterus was then emptied in an orderly fashion, and then a sharp curette was used to remove all products of conception. There was minimal bleeding. The patient received IV sedation in addition to local anesthesia and was comfortable during this procedure. When the products of conception were noted to be obtained the procedure was ended. The speculum was removed and no bleeding was noted from the tenaculum site. The patient was transferred to the recovery room in good and stable condition with Pitocin running in her IV bag.

ICD-10-PCS codes: _____

Chapter 5

Placement Section, Administration Section

This chapter describes placement and administration procedures and defines new root operations applicable to these sections. Examples introducing substances with local and systemic effects are presented. Practice exercises are included.

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	Compression 5.4
	Dressing 5.4
	Immobilization 5.4
	Packing 5.4
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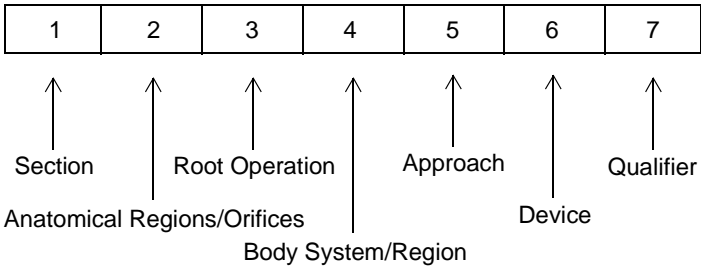
Placement Section

Administration Section

Placement

Placement procedures refer to putting a device in or on a body region for the purpose of protection, immobilization, stretching, compression or packing. A device is always specified with a placement procedure.

Characters



The first character for all placement procedures is 2. There are two body system values - X for anatomical regions and Y for anatomical orifices. The root operations, change and removal, are used in the Placement section and have the same meaning as in the Medical and Surgical section.

The Placement section also includes the following root operations:

Compression Putting pressure on an external body part

Dressing Putting material on an external body part for protection

Note: Dressing is coded only if it is the sole objective of the procedure.

Immobilization Limiting or preventing motion of an external body part

Packing Putting material in a body part

Traction Exerting a pulling force on an external body part in a distal direction

The body regions for the Placement section are either external body regions (e.g., neck, upper leg) or natural orifices. The approach is always none since all placement procedures are performed on an external body part or within an orifice. The device character indicates the material or device used in the placement procedure (e.g., cast, splint, bandage, etc.) The devices used in the Placement section (except for casts for fractures and dislocations) are off the shelf and do not require any extensive design, fabrication or fitting. The placement of devices requiring extensive design, fabrication or fitting is coded in the Rehabilitation section. No qualifiers are used in the Placement section, so the seventh character is always Z for none.

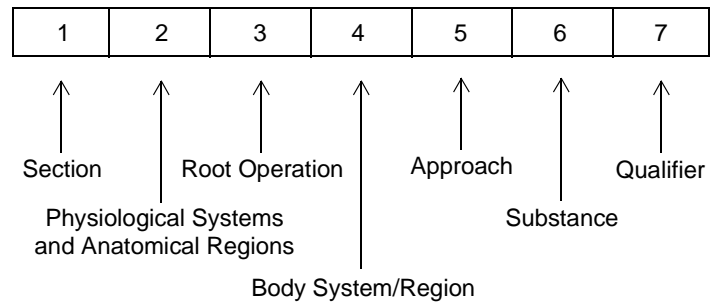
Exercise one

1. The root operation for putting material on an external body part for protection is:
 A. compression
 B. packing
 C. immobilization
 D. dressing
2. (T) (F) A device is always specified for a placement procedure.
3. The value for the qualifier character in the Placement section is _____.
4. The seven character ICD-10-PCS code for packing the nose is _____.
5. The seven character ICD-10-PCS code for removing a cast from the left lower leg is _____.

Administration

Administration procedures refer to putting in or on a therapeutic, prophylactic, protective, diagnostic, nutritional or physiological substance.

Characters



The first character, specifying the section, is 3 for administration procedures. There are only two body system characters - X for physiological systems and anatomical regions and 0 for circulatory. The circulatory system is used for transfusion procedures.

There are three root operations for the Administration section:

<i>Introduction</i>	Putting in or on a therapeutic, diagnostic, nutritional, physiological or prophylactic substance except blood or blood products
<i>Irrigation</i>	Putting in or on and retrieving a liquid substance
<i>Transfusion</i>	Putting in blood or blood products

The fourth character specifies the body system/region, which is the site where the administration occurs. Body system/region characters include skin and mucous membranes, subcutaneous tissue and muscle, which are used to differentiate intradermal, subcutaneous and intramuscular injections.

Approaches have the same meaning as in the Medical and Surgical section. The approach for intradermal, subcutaneous and intramuscular injections is percutaneous. The approach is percutaneous intraluminal when a catheter is used to introduce a substance into an internal site within the circulatory system. Thus, the procedure for using a catheter to introduce contrast directly into the heart for angiography is coded as a percutaneous intraluminal introduction of contrast into the heart.

The body system/region for arteries and veins are peripheral artery, central artery, peripheral vein and central vein. When a substance is introduced locally, the peripheral artery or vein is used. Chemotherapy is the introduction of an antineoplastic substance into a peripheral artery or vein by a percutaneous intraluminal approach. In general, the substance introduced into a peripheral artery or vein has a systemic effect.

The central artery or vein is used when the site within the artery or vein where the substance is introduced is distant from the point of entry of the instrumentation into the artery or vein. The introduction of a substance using a catheter directly at the site of a clot within an artery or vein would be coded as an introduction of a thrombolytic substance into a central artery or vein by a percutaneous intraluminal approach. In general, the substance introduced into a central artery or vein has a local effect.

The sixth character identifies the substance being introduced. There are broad categories of different substances, such as anesthetics, contrast, or dialysate, plus blood products specified in character 6.

Character 7 is a qualifier used to indicate whether the introduction is single or continuous. Introduction of a substance requiring more than 15 minutes is considered a continuous introduction. A standard IV would be a continuous introduction of an electrolyte and water balance substance into a peripheral vein by a percutaneous intraluminal approach. For the circulatory body system, the qualifiers, autologous and nonautologous, are used to describe the substance administered.

Exercise two

1. The body system character for a blood transfusion is _____.
2. The root operation for putting in or on and retrieving a liquid substance is _____.
3. The body system/region character for spinal canal is _____.
4. The substance character identified for an artificial insemination procedure is _____.
5. The seven character ICD-10-PCS code for intramuscular injection of Hepatitis A vaccine into left arm is _____.
6. The seven character ICD-10-PCS code for transfusion of nonautologous blood intravenously in the right arm is _____.

7. The seven character ICD-10-PCS code for administration of Kenalog 40 into the knee joint is _____.
8. The seven character code for single irrigation of the peritoneal cavity is _____.
9. The seven character code for total peripheral parenteral infusion of 3.5% amino acid nutrition solution is _____.
10. The seven character code for continuous intravenous administration of Bleomycin, Vincristine and Adriamycin is _____.

Chapter 6

Measurement and Monitoring Section

This chapter defines and differentiates measuring and monitoring procedures. The functions to be monitored are identified. Practice exercises requiring the assignment of applicable seven character codes are included.

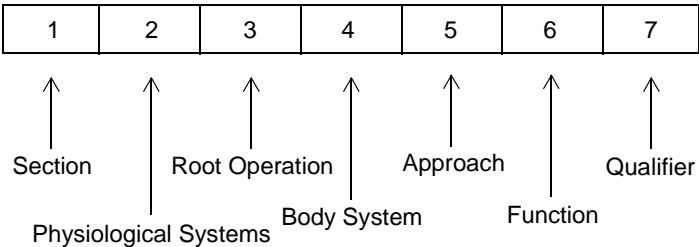
Contents	Measurement and Monitoring Section 6.1
	Characters 6.3
	<i>Measurement</i> 6.3
	<i>Monitoring</i> 6.3
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Measurement and Monitoring

Section

MEASUREMENT AND MONITORING PROCEDURES refer to the determination of the level of a physiological or physical function. If the equipment used to perform the measurement and monitoring is a device that is inserted and left in, the insertion of the device is coded as a separate procedure.

Characters



The number 4 is the first character identifying the Measurement and Monitoring section. Only one body system character is identified - X for physiological systems.

There are two root operations identified as:

- Measurement

Determining the level of a physiological or physical function at a point in time
- Monitoring

Determining the level of a physiological or physical function repetitively over a period of time

The fourth character specifies the specific body system which is being measured and monitored. Multiple body systems and the whole body are identified.

The fifth character identifies approaches, which have the same meaning as in the Medical and Surgical section.

The sixth character specifies the precise physiological or physical function being measured or monitored. Functions such as acuity, conductivity, metabolism, pulse, temperature or volume are identified.

Character 7 qualifiers are: central, peripheral, portal, pulmonary, stress, ambulatory, right heart, left heart, bilateral, and sensory motor. Qualifiers are unique to each procedure.

An EKG would be the measurement of cardiac electrical activity while an EEG would be the measurement of electrical activity of the central nervous system. A cardiac catheterization performed to measure the pressure on the heart is coded as the measurement of cardiac pressure by a percutaneous intraluminal approach.

Exercise one

1. **The seven character ICD-10-PCS code(s) for cardiovascular treadmill with pharmacologic stress and continuous EKG monitoring is _____.**
2. **The seven character ICD-10-PCS code for electrocardiographic monitoring for 24 hours by continuous computerized monitoring, non-continuous recording and real time data analysis is _____.**
3. **The seven character ICD-10-PCS code for spirometry including total and timed vital capacity and expiratory flow rate measurement is _____.**
4. **The seven character ICD-10-PCS code for bundle of HIS recording is _____.**
5. **The seven character ICD-10-PCS code for nerve conduction study radial nerve is _____.**
6. **The seven character ICD-10-PCS code for determination of visual acuity is _____.**

Chapter 7

Imaging Section

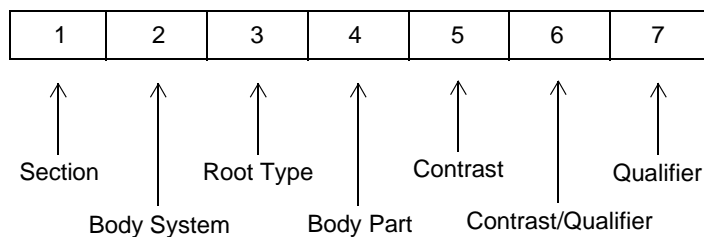
This chapter outlines the contents of the Imaging section and defines the root types of imaging procedures. The code characters for this section are delineated. Practice exercises and imaging reports are also included.

Contents	Imaging Section 7.1
	Characters 7.3
	<i>Plain Radiography</i> 7.4
	<i>Fluoroscopy</i> 7.4
	<i>Computerized Tomography (CT Scan)</i> 7.4
	<i>Magnetic Resonance Imaging (MRI)</i> 7.4
	<i>Ultrasonography</i> 7.4
	Exercise one 7.5
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Imaging Section

IMAGING PROCEDURES INCLUDE plain film, fluoroscopy, computerized tomography, magnetic resonance imaging and ultrasound. Nuclear medicine procedures, including PET, uptakes and scans, are in the Nuclear Medicine section and therapeutic radiology is in the Radiation Oncology section.

Characters



The number 5 is the first character for imaging procedures. The second character identifies the body systems. With a few exceptions, body system characters are the same as those in the Medical and Surgical section.

The root type (third character) and definitions for imaging procedures are:

<i>Plain Radiography</i>	Planar display of an image developed from the capture of external ionizing radiation on photographic or photoconductive plate.
<i>Fluoroscopy</i>	Single plane or bi-plane real time display of an image developed from the capture of external ionizing radiation on fluorescent screen. The image may also be stored by either digital or analog means.
<i>Computerized Tomography (CT Scan)</i>	Computer reformatted digital display of multiplanar images developed from the capture of multiple exposures of external ionizing radiation.
<i>Magnetic Resonance Imaging (MRI)</i>	Computer reformatted digital display of multiplanar images developed from the capture of radio frequency signals emitted by nuclei in a body site excited within a magnetic field.
<i>Ultrasonography</i>	Real time display of images of anatomy or flow information developed from the capture of reflected and attenuated high frequency sound waves.

Body part characters are specified for each of the body systems. The fifth character specifies the type of contrast material used in the imaging procedures. Contrast is differentiated by the concentration of the contrast material (high or low osmolar). The specific contrast is specified when the concentration of the contrast is not relevant. The sixth character provides either further detail about the contrast material, such as the route of administration (e.g., IV, direct, via colostomy), or contains a qualifier specific to the root type of imaging procedure, such as portable for plain radiography procedures.

The seventh character is a qualifier that has a unique meaning for individual imaging procedures. Qualifiers include:

- u Cine evaluation
- u Plain film subtraction
- u Guidance for invasive procedures
- u 3D reconstruction
- u Type of views (AP/PA, decubitus, limited)
- u Foreign body localization
- u Tomography, one or multiple planes

Exercise one Place the character for each imaging procedure before its definition.

0 Plain radiography

1 Fluoroscopy

2 CT scan

3 MRI

4 Ultrasonography

1. _____ Single plane or bi-plane real time display of an image developed from the capture of external ionizing radiation on fluorescent screen.
2. _____ Real time display of images of anatomy or flow information from the capture of reflected and attenuated high frequency sound waves.
3. _____ Planar display of an image developed from the capture of external ionizing radiation on photographic plate.
4. _____ Computer reformatted digital display of multiplanar images developed from the capture of multiple exposures of external ionizing radiation.
5. _____ Computer reformatted digital display of multiplanar images developed from the capture of radio frequency signals emitted by nuclei in a body site excited within a magnetic field.

Guidelines for coding with ICD-10-PCS

1. Combination sites from different body systems are listed under the anatomical regions body system (e.g., head and neck; chest and abdomen; liver and spleen).
2. An imaging code is required when surgical procedures are performed under CT or ultrasound guidance such as breast biopsy with CT guidance. *Note:* The body system and body part characters may not be identical for the two procedures.
3. Interventional radiology procedures require two or more codes.

Examples

ERCP - one code for endoscopic administration of the contrast agent and another for the imaging. Cardiac catheterization - one code for administration of contrast agent and one for inspection or measurement.

4. The letter X is used for the fifth character to indicate Identification not Requested (INR) when the payor requests that this level of detail about the contrast material not be reported.

Exercise two Assign the correct ICD-10-PCS code(s) to the following imaging reports.

CODING EXERCISE 1 (Bilateral Mammogram)

HISTORY: Patient is 66. This is a routine screening. Prior examination here in March 1995. No new palpable lesions.

PROCEDURE:
Craniocaudal and mediolateral oblique views of both breasts were performed. In addition spot compression of the right side in both cc and mediolateral projections. All films are of low dose film screen technique.

FINDINGS:
On the right side centrally 7 to 8 o'clock there are two small nodular densities connected by a tissue bridge. There are radiating fibrous strands from each. The previous study is a xeromammogram and shows only a vague opacity in this area but does have the same general appearance with faint suggestion of radiating strands. The remainder of both breasts shows patchy glandularity with no other dominant mass, clustered calcification or architectural distortion.

IMPRESSION:
Nodular densities right side separated by a short bridge with spiculation centrally at 7 to 8 o'clock. These do appear to have been present earlier but were not well resolved by the previous xeromammographic technique. Suggest recheck of the right side in six months. No other radiographically suspicious areas.

ICD-10-PCS codes: _____

CODING EXERCISE 2 (Transvaginal Sonography for Follicular Development)

DAY 10:

The right ovary contains 9 follicles, the largest measuring 1.1 cm. The left ovary contains 15 follicles, the largest measuring 1.9 cm. No free fluid is seen in the cul-de-sac. Endometrial echos appear late proliferative to periovulatory in configuration. Greatest transverse diameter measures 6 mm.

ICD-10-PCS codes: _____

CODING EXERCISE 3 (MRI Arthrogram of the Right Shoulder)

PROCEDURE:

A MRI scan was performed on a 1.0 Tesla Siemens Magnetom IMPACT MRI unit utilizing the following pulse sequences.

1. Axial, 2-D gradient echo, T2* weighted images (FLASH)
2. Oblique coronal, proton density and T2 weighted images
3. Oblique sagittal, T1 weighted images

FINDINGS:

Prior to the intra-articular injection of contrast, evaluation of the right shoulder demonstrates a normal appearing rotator cuff. There is no significant signal alterations with no increased signal evident on the T2 weighted sequence.

There is degenerative hypertrophic spurring at the acromioclavicular joint with extension slightly into the subacromial space. The distal clavicle indents slightly the superior margin of the supraspinatus tendon as it traverses the cuff.

There is an area of minimal signal alteration in the humeral metaphysis which likely represents residual hematopoietic marrow.

The patient's right shoulder joint was prepared in the usual sterile fashion utilizing fluoroscopic guidance. Following induction of local anesthesia, a 22 gauge needle was placed into the shoulder joint. Following confirmation of position under fluoroscopy, a total of 10 cc of iodinated contrast and Gadolinium were injected. The needle was withdrawn. The joint was initially exercised with the patient in the supine position. Spot film radiographs were obtained. These demonstrated smooth appearance to the supraspinatus tendon with no evidence of extravasation outside the confines of the rotator cuff.

Following the initial radiographs, the patient was turned upright and the joint further exercised particularly with the joint abducted above the patient's head. This was done under fluoroscopic visualization where it was noted that contrast extravasated outside the confines of the joint space at the anterior portion of the supraspinatus tendon. No loose bodies were demonstrated within the joint space.

Following the intra-articular administration of Gadolinium and contrast, 3-D axial, coronal and sagittal sequences of the shoulder were obtained utilizing the 1.0 Tesla Siemens Magnetom IMPACT MR scanner. In addition, coronal T1 weighted post-Gadolinium sequences were obtained.

MR evaluation demonstrates a small area of discontinuity of the supraspinatus tendon just posterior to its anterior leading edge. This may be approximately 1 cm posterior and proximal to its anterior leading edge insertion on the greater tuberosity. This extravasated contrast is best defined on both the coronal and sagittal sequences.

The glenoid labrum has a prominent cleft of the superior labrum. In addition,

in the axial images, there is separation of the anterior superior labrum from the bony glenoid consistent with the presence of a sublabral hole. The labrum is at all times smooth. No defects of the bony glenoid are evident. No loose bodies are noted within the joint space. The subscapularis and biceps tendon appear in normal position. There is increased signal noted in the anterior glenohumeral ligament which is near the site of injection and may represent partial extravasion of contrast outside the confines of the joint space, perhaps related to the exercise.

IMPRESSION:

There is demonstration of a small complete rotator cuff tear involving the supraspinatus tendon approximately 1 cm posterior and proximal to the leading edge insertion on the greater tuberosity of the humerus.

The glenoid labrum has a prominent superior cleft and appears to demonstrate a normal variant identified as a sublabral hole. It is not likely to be torn.

Degenerative hypertrophic spurring in the acromioclavicular joint with some extension of spur into the subacromial space.

ICD-10-PCS codes: _____

CODING EXERCISE 4 (Ultrasound Pseudoaneurysm Compression)

A pseudoaneurysm with internal flow was identified arising from the left common femoral artery. Compression of the pseudoaneurysm was performed. There was no flow within the pseudoaneurysm following the compression. The patient was rechecked in approximately four hours and again showed no flow within the pseudoaneurysm. There was normal flow throughout the left common femoral artery.

IMPRESSION:

Successful compression of the pseudoaneurysm of the left common femoral artery.

ICD-10-PCS codes: _____

CODING EXERCISE 5 (Hip Joint 2 Views Right and Left, Pelvis 1 View AP)

Hips and Pelvis: Total hip joint replacement procedure has been undertaken on the right. A fracture of the left hip has been stabilized by three long Knowles type pins.

There is a little arthritic change about the left hip. There is much sclerosis and hyperdense material around the right hip secondary to the hip joint replacement. No definite acute fracture is noted.

ICD-10-PCS codes: _____

CODING EXERCISE 6 (ERCP with Stone Removal)

Patient presenting with apparent cholangitis. Procedure now being performed to rule out possible choledocholithiasis.

PROCEDURE:

After informed consent, the patient was placed in the left lateral decubitus position and adequately sedated. The side-viewing therapeutic endoscope was passed into the esophagus without difficulty. The esophageal mucosa appeared normal as did the gastric and duodenal mucosa. A bulbous appearing ampulla was identified. This was cannulated using a 5 French catheter. The common bile duct was opacified revealing copious amounts of debris within distal common bile duct. The common bile duct was not dilated. Intrahepatic branches appeared normal. Tertiary branches were somewhat pruned and narrowed, but no lesions were noted. Using a .035 guide wire the right intrahepatic ducts were further cannulated while removing catheter. A sphincterotome was passed. A 1 cm. sphincterotomy was performed without difficulty. The sphincterotome was removed and subsequently replaced with an 8 mm. balloon which was dragged through the common bile duct revealing copious amounts of debris. Further opacification revealed a stone within the gallbladder and a somewhat dilated cystic duct. The balloon was removed. The scope was removed. The patient tolerated the procedure quite well.

IMPRESSIONS:

1. Choledocholithiasis
2. Cholelithiasis
3. Status post sphincterotomy with balloon

RECOMMENDATIONS:

Would suggest that patient remain on IV antibiotics for another 24-48 hours.
Would recommend possible cholecystectomy.

ICD-10-PCS codes: _____

CODING EXERCISE 7 (Obstetrical Ultrasound)

Ultrasound of the gravid uterus was performed with the patient supine. Transverse and longitudinal sonograms were obtained.

Fetal cardiac activity was observed. The lie is longitudinal with a cephalic presentation. Amniotic fluid volume is normal. The placenta is posterior and fundal. There is no evidence of previa.

		VALUE (cm)	MEAN AGE (weeks)
.1	HC	26.1 cm	28 weeks, 1 day
2.	BPD	7.1 cm	28 weeks, 5 days
3.	FL	5.4 cm	28 weeks, 2 days
4.	AC	23.9 cm	28 weeks, 1 day

Average gestational age by various ultrasound criteria is 28 weeks, 2 days. HC/AC ratio is 1.09.

IMPRESSION:

Single intrauterine gestation of approximately 28 weeks, 2 days gestational age by various ultrasound criteria.

ICD-10-PCS codes: _____

CODING EXERCISE 8 (Carotid Doppler)

HISTORY: Patient has right forearm numbness. She is hypertensive with a CVA 15 years ago.

FINDINGS:
Real-time ultrasound examination using color flow and pulsed doppler was performed on both sides of the neck. There is a very small amount of plaquing at the bulb proximal internal carotid arteries of a mild degree bilaterally. The peak systolic and diastolic flows are normal at all levels and there is normal internal common carotid ratios.

Right CCA	53 cm/second	Left CCA	49 cm/second
Right ICA	67 cm/second	Left ICA	50 cm/second
Right ICD	18 cm/second	Left ICD	12 cm/second
Right ECA	73 cm/second	Left ECA	51 cm/second

No turbulent flow on color flow doppler and antegrade flow both vertebrals.

IMPRESSION:
Mild plaquing at the origin of the internal carotid arteries bilaterally with normal flow velocities and normal spectral analysis indicating no significant stenosis.

ICD-10-PCS codes: _____

CODING EXERCISE 9 (Lower GI)

CLINICAL HISTORY:

A 60 year old with chronic RLQ abdominal pain and heme. positive stools.

Preliminary film demonstrates diffuse osteopenia without evidence for focal osteolytic or osteoblastic processes. The bowel gas pattern is nonspecific and there is no evidence of abnormal calcification.

Routine double contrast lower GI exam was performed. The entire colon is well seen. The rectum, descending, transverse and ascending colons all demonstrate no evidence for intraluminal filling defects, extrinsic compression abnormalities or focal areas of stricture or dilatation. There is a small (1 x 1 cm) diverticulum involving the cecum which is seen on multiple cecal views. There is no mass associated with this diverticulum and there is no evidence for inflammatory changes. No other diverticula are noted. There is no evidence for mass effect or intraluminal abnormalities involving the cecum.

A significant amount of retained stool is noted on multiple views and therefore small polyps (less than 5 mm) cannot be definitely ruled out.

IMPRESSION:

Retained fecal debris limits study somewhat as above. A small 1 cm wide mouth cecal diverticulum is noted. Exam otherwise unremarkable.

ICD-10-PCS codes: _____

CODING EXERCISE 10 (Voiding Cystourethrogram)

PREOPERATIVE DIAGNOSIS: Prostate cancer

POSTOPERATIVE DIAGNOSIS: Prostate cancer

OPERATION: Voiding cystourethrogram

ANESTHESIA: Local anesthesia

PROCEDURE:

The patient was brought to the cystoscopy suite and placed on the cystoscopy table. The patient has an indwelling Foley catheter which was placed three weeks ago at the time of surgery. At that time the patient had a radical retropubic prostatectomy. The Foley catheter was filled with contrast material and approximately 240 cc's of contrast material was placed in the bladder and this was checked. The patient was then instructed to bear down and try and void around the catheter while it was in place and clamped. This was watched on fluoroscopy. There was no obvious leak from around the anastomotic site and the plain x-rays were taken in the oblique position. These x-rays were then reviewed. The filling x-ray revealed an area of very minimal evidence of fluid around the anastomotic site. There was no tracking up of any significant leak of fluid on this x-ray. The voiding film revealed the same area of minimal fluid collection but no other obvious leak. It was decided at this time that the catheter would be removed. Before this was done the patient had the contrast washed out of his bladder and another film was taken. This revealed the same minimal area of contrast material around the anastomotic site or possibly in the proximal portion of the urethra. The catheter was removed after the patient's bladder was filled with water. The patient voided promptly and with a good urinary stream and without difficulty. A KUB was taken and this revealed the same minimal area of contrast. There was no increase in the area or tracking of the contrast anywhere else in the pelvis. The patient tolerated the procedure well and was sent back to his room with the Foley catheter removed.

ICD-10-PCS codes: _____

CODING EXERCISE 11 (MRI Right Shoulder)

PROCEDURE:

Serial axial T1 and gradient echo images are performed in addition to oblique, coronal, T1, T2 and proton density weighted images. Oblique sagittal T1 weighted images were also performed.

FINDINGS:

A soft tissue mass is seen at the acromioclavicular joint with increased T2 signal characteristic with sinus tract extending to the surface of the skin. There is a destructive change involving the adjacent acromial process and the distal clavicle. There is also focal increased T2 signal at the origin of the deltoid muscle near the acromion which is consistent with inflammatory change. Joint effusion is seen in the subacromial and subdeltoid bursa extending inferiorly to subdeltoid fascia.

In addition to these acute inflammatory changes, there is atrophy and fatty replacement of the muscles surrounding the glenohumeral joint. There are multiple pins within the humeral head along the posterolateral aspect as well as intermedial aspect with low T1 and increased gradient echo and T2 signal characteristics. Considerations include subchondral cysts vs. foci of infection. There are also 2 areas of decreased T1 and increased T2 signal characteristics along the glenoid which is suspicious for subchondral cysts. The anterior labrum is intact and posterior labrum is not well visualized. There is a foci of high signal within the supraspinatus tendon anteriorly which is suspicious for either severe focal tendonitis vs. partial tear.

IMPRESSION:

Soft tissue mass with a sinus tract involving the acromioclavicular joint with associated destruction of the distal clavicle and the anterior acromion consistent with osteomyelitis. There is associated inflammatory change involving the deltoid muscle and the joint effusion along the subdeltoid and subacromial bursa.

Small lesions within the humeral head as described above. These lesions may represent foci of infection vs. subchondral cysts.

Evidence of underlying rotator cuff injury as evidenced by changes within the supraspinatus tendon consistent with severe tendonitis vs. partial tear.

ICD-10-PCS codes: _____

CODING EXERCISE 12 (CT Head)

PROCEDURE:

CT of the head was performed both with and without the intravenous administration of contrast. No previous studies are available for comparison.

There is a normal-sized and symmetrically appearing ventricular system. There are no recognizable areas of either abnormally increased or decreased attenuation coefficient, midline shift or effacement of cortical sulci to suggest the presence of intracranial hemorrhage or recognizable space-occupying lesion. Following intravenous administration of contrast, there is routine enhancement of vascular and tentorial structures.

IMPRESSION:

Normal head CT with and without contrast.

ICD-10-PCS codes: _____

Chapter 8

Nuclear Medicine Section

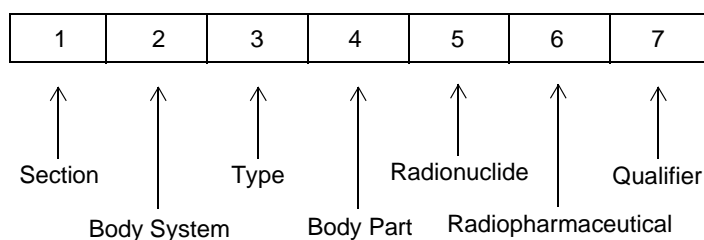
This chapter outlines the contents of the Nuclear Medicine section and defines the code characters for this section. Rules for assigning codes to nuclear medicine procedures are specified. Practice exercises and nuclear medicine reports are also included.

Contents	Nuclear Medicine Section 8.1
	Characters 8.3
	Planar Nuclear Medicine Imaging 8.4
	Tomographic (Tomo) Nuclear Medicine Imaging 8.4
	Positron Emission Tomographic (PET) Imaging 8.4
	Nonimaging Nuclear Medicine Uptake 8.4
	Nonimaging Nuclear Medicine Probe 8.4
	Nonimaging Nuclear Medicine Assay 8.4
	Systemic Nuclear Medicine Therapy 8.4
	Exercise one 8.5
	Guidelines for coding with ICD-10-PCS 8.5
	Exercise two 8.5

Nuclear Medicine Section

NUCLEAR MEDICINE IS THE INTRODUCTION of radioactive material into the body in order to create an image to diagnose and treat pathologic conditions and to assess metabolic function. The radioactive material is absorbed or excreted by the body. There is no device that is inserted/retrieved (surgical procedures). The introduction of encapsulated radioactive material for the treatment of oncologic disease is included in the Radiation Oncology section.

Characters



The number 6 is the first character identifying the Nuclear Medicine section. The second character identifies the body systems on which the nuclear medicine procedure is performed. With a few exceptions, the body system characters are the same as those in the Medical and Surgical section.

The third character identifies the type of nuclear medicine procedure performed:

<i>Planar Nuclear Medicine Imaging</i>	Introduction of radioactive materials into the body for single plane display of images developed from the capture of radioactive emissions.
<i>Tomographic (Tomo) Nuclear Medicine Imaging</i>	Introduction of radioactive materials into the body for three dimensional display of images developed from the capture of radioactive emissions.
<i>Positron Emission Tomographic (PET) Imaging</i>	Introduction of radioactive materials into the body for three dimensional display of images developed from the simultaneous capture, 180 degrees apart, of radioactive emissions.
<i>Nonimaging Nuclear Medicine Uptake</i>	Introduction of radioactive materials into the body for measurements of organ function, from the detection of radioactive emissions.
<i>Nonimaging Nuclear Medicine Probe</i>	Introduction of radioactive materials into the body for the study of distribution and fate of certain substances by the detection of radioactive emissions; or, alternatively, measurement of absorption of radioactive emissions from an external source.
<i>Nonimaging Nuclear Medicine Assay</i>	Introduction of radioactive materials into the body for the study of body fluids and blood elements, by the detection of radioactive emissions.
<i>Systemic Nuclear Medicine Therapy</i>	Introduction of unsealed radioactive materials into the body for treatment.

The fourth character indicates the body part or body region being studied. Regional (e.g., lower extremity vein) and combination body parts (e.g., liver and spleen) are commonly used in this section.

The fifth character specifies the radionuclide that is the source of the radiation. Character 6 specifies the radiopharmaceutical agent. The very extensive listing of radiopharmaceuticals uses the fifth and sixth characters together (e.g., 91 Krypton [Kr-81m] gas).

A not elsewhere classified (NEC) option is included in the Nuclear Medicine section to be used for newly approved radiopharmaceuticals until they can be explicitly added to the coding system. The letter Y is used in characters 5 and 6 to indicate an unlisted radionuclide/radiopharmaceutical combination.

The letter X is used for the fifth and sixth characters to indicate Identification Not Requested (INR) when the payor requests that the name of the specific radionuclide and radiopharmaceutical not be reported.

Qualifiers are used frequently to provide further details on the specific nuclear medicine procedure performed. Qualifiers are specific to the type of nuclear medicine procedure and body part or body region being

studied. For example, qualifiers used with tomographic imaging of the heart include rest, stress, and wall motion.

Exercise one

1. The body system code for the lymphatic system is _____.
2. The introduction of radioactive material into the body for three dimensional display of images developed from the simultaneous capture, 180 degrees apart, of radioactive emissions is _____ imaging.
3. The procedure for the introduction of radioactive material into the body for the study of body fluids and blood elements by the detection of radioactive emissions is _____.
4. The body part code for the myocardium is _____.
5. The code for the radiopharmaceutical Xenon 127 is _____.

Guidelines for coding with ICD-10-PCS

1. If a nuclear medicine procedure is discontinued after administration of a radiopharmaceutical and no imaging is performed, only the administration code is assigned.
2. A qualifier is used to identify two imaging sessions performed at different times without an additional administration of a radiopharmaceutical.
3. For unplanned return imaging sessions where no additional radiopharmaceutical is administered, use the code for “any body part” in the Anatomical Region body system for character 4 regardless of the body system/part being imaged. Use Z in characters 5 and 6 to indicate that no additional radiopharmaceutical was administered.
4. Two codes are assigned when two radiopharmaceuticals are administered for a nuclear medicine procedure even when imaging is performed simultaneously.

Exercise two

Assign the correct ICD-10-PCS codes to the following nuclear medicine reports.

CODING EXERCISE 1

RADIONUCLIDE RENOGRAM IMAGING STUDY:

Following the intravenous administration of 248 uCi of radioactive I-131 labeled hippuran, serial static imaging was obtained over the abdomen in the posterior position for thirty minutes postinjection. The images were computer acquired and computer processed.

There is prompt uptake of tracer by both kidneys. Excretion into the collecting system is seen at four to six minutes. Bladder activity is seen at six minutes. There is some retention of tracer in the right renal pelvis, however, this washes out.

Computer generated curves demonstrate an entirely normal left kidney. There is confirmation of tracer retention in the right renal collecting system however there is no evidence of obstruction and tracer drains out after a brief delay.

IMPRESSION:

Mild tracer retention in right renal collecting system without evidence of obstruction.

By radionuclide criteria, the findings are not suggestive of renal artery stenosis or collecting system obstruction.

ICD-10-PCS codes: _____

CODING EXERCISE 2

RADIONUCLIDE THREE PHASE IMAGING STUDY - KNEES:

Following the intravenous administration of 22.0 mCi of radioactive Tc-99m methyl diphosphonate, serial flow images of the knees were obtained in the anterior position for thirty-six seconds postinjection. Immediate and five minute postperfusion images were then obtained. Following a three hour delay, multiple views of the knees were performed. This included a pain marker image and a zoom image.

Examination of the flow and postperfusion images demonstrates no focal hyper or hypoperfused area.

Standard delayed images obtained in multiple projections demonstrate minimally increased tracer activity in the medial compartments of both knees in a roughly symmetric distribution.

IMPRESSION:

Minimal increase in tracer activity in the articular surfaces of the medial compartment of both knees. This is consistent with, although not diagnostic of, minimal inflammation.

ICD-10-PCS codes: _____

CODING EXERCISE 3

THALLIUM MYOCARDIAL IMAGING STUDY (PLANAR & ECT) POSTSTRESS AND AT REST:

HISTORY:

Abnormal treadmill, evaluate for myocardial ischemia

A myocardial perfusion imaging study was obtained following the intravenous administration at maximum exercise of a 3.12 mCi dose of radioactive thallium-201 chloride. Static images were obtained ten minutes postinjection and four hours postexercise in the anterior, 45° LAO, and 70° LAO views. Rotational tomography was also performed immediately postexercise and at rest obtaining sixty-four projections over 180° to the left ventricle. The images were reconstructed into short axis, sagittal, and coronal views of the left ventricle.

The patient did reach 85% of the maximal predicted heart rate.

Examination of the poststress images demonstrates uniform perfusion throughout the left ventricular myocardium postexercise and at rest. There is no interval change between exercise and rest. The left ventricle is normal in size postexercise.

There is no evidence of transient ischemic dilation. There is no significant lung activity postexercise.

IMPRESSION:

Myocardial perfusion imaging study demonstrates neither exercise induced nor fixed perfusion defects.

ICD-10-PCS codes: _____

CODING EXERCISE 4

DEXA, BONE DENSITY ANALYSIS, PROXIMAL FEMUR

Bone mineral determination, femur (dual energy x-ray absorptiometry)

Region	BMD g/sq.cm	%Young Normal	% Age Matched	Fracture Risk
Femoral neck	.78	80	100	moderate
Ward's triangle	.63	69	98	marked
Trochanteric	.62	78	90	moderate

Bone absorptiometry was performed of the femur. Results are given both in terms of absolute density and as a percentage of density in a young normal population.

Bone mineral content less than 90% of young-normal (or under .90 grams/sq.cm) represents mild osteopenia, less than 80% (or less than .77 grams/sq.cm) moderate, and less than 70% (or less than .67 grams/sq.cm) marked to extreme osteopenia. The degree of osteopenia correlates roughly with fracture risk.

Under appropriate circumstances fractures may occur more frequently when the BMD is below .80 grams/sq.cm.

CONCLUSION:

The patient's bone mineral density (BMD) is reduced. The average BMD value for the femoral neck is .78 grams/sq.cm or 80% of that expected in a young-normal and with this degree of demineralization there is a moderate fracture risk when compared to the expected peak bone mass for this particular patient's sex, ethnic group and body size.

These values are 100% of age-matched individuals and therefore indicate that your patient's bone loss is primarily age-related but could involve other factors that accelerate mineral depletion.

The bone density is 2 S.D. below the mean, therefore, treatment to prevent further bone demineralization may be warranted.

ICD-10-PCS codes: _____

CODING EXERCISE 5

THYROID UPTAKE AND IMAGING:

Note: 24 hour uptake = 51% (markedly increased)

The scan shows enlarged gland (right lobe larger) with irregular distribution on both sides (more accentuated on right side).

CONCLUSION:

Hyperthyroid, multinodular goiter

ICD-10-PCS codes: _____

Chapter 9

Radiation Oncology Section

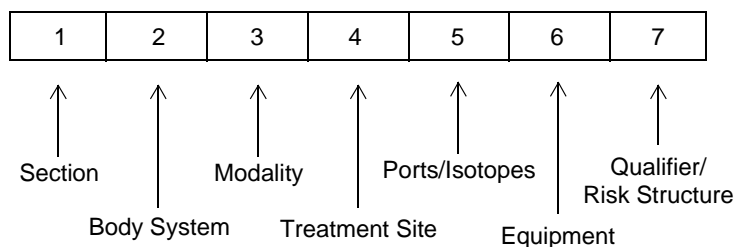
This chapter outlines the contents of the Radiation Oncology section and defines the code characters for the section. Rules for assigning codes to radiation oncology procedures are specified. Practice exercises and radiation oncology reports are also included.

Contents	Radiation Oncology Section 9.1
	Characters 9.3
	Exercise one 9.4
	Guidelines for coding with ICD-10-PCS 9.4
	Exercise two 9.4

Radiation Oncology Section

THE RADIATION ONCOLOGY SECTION INCLUDES all radiation oncology procedures, including all treatment simulation and medical physics treatment support procedures performed as part of radiation oncology.

Characters



The first character of the Radiation Oncology section is the number 7.

The second character identifies the body system that is being irradiated. Several body system characters are identified.

The third character identifies the modality and type of radiation being used (e.g., photons, neutrons, brachytherapy).

The fourth character, treatment site, identifies the body part that is the target of the radiation therapy.

Character 5 provides a list of the ports used. Ports are the number of beams directed at the body part that is receiving the radiation or the isotopes introduced into the body. The specific isotopes and agents

that are administered in radiation oncology treatments are also listed in character 5.

Character 6 specifies the equipment used during a radiation oncology procedure. The equipment may be pre-fabricated materials or custom-designed and constructed specifically for individual patients. These are an integral part of the radiation oncology procedure (e.g., eye shield).

The seventh character is a qualifier that, for radiation oncology treatments and simulations, specifies the risk structures that are taken into account as part of the intervention (e.g., eye, brain stem, spinal cord). The risk structures are body parts that may be exposed to radiation and must be taken into account during the radiation oncology procedure.

For medical physics procedures, the qualifier identifies the specific medical physics activity performed (e.g., dosimetry, irregular field calculation). The letter X (Identification not Requested) in characters 5, 6, and 7 indicates that this level of detail is not requested by the payor.

Exercise one

1. The body system character for total body irradiation is _____.
2. The modality code for iodine administration is _____.
3. The character code to indicate that the eye is a risk structure for photon therapy of the central nervous system is _____.
4. The character code to indicate an eye shield was used with photon therapy of the central nervous system is _____.
5. The character code to indicate that 2 ports were use for photon therapy of the larynx is _____.

Guidelines for coding with ICD-10-PCS

1. Assign one code for each patient encounter - treatment, dosimetry, implant, etc. A patient may have multiple encounters in a day.
2. If multiple modalities are used to treat a patient on the same day, each modality is coded as an encounter.
3. Assign the letter X for characters 5, 6 and 7 to indicate that the identification of the ports or isotopes, equipment, and risk structures are not requested by the payor.

Exercise two

Assign ICD-10-PCS codes to the following radiation oncology reports.

CODING EXERCISE 1

PREOPERATIVE DIAGNOSIS: High grade endometrial cancer with medical contraindication to hysterectomy

POSTOPERATIVE DIAGNOSIS: High grade endometrial cancer with medical contraindication to hysterectomy

OPERATION: Insertion of Simon's capsules intracavitary afterloading cesium radiotherapy device

PROCEDURE:

The patient was placed in the dorsal lithotomy position with the legs in GU stirrups. The perineum was prepared with Betadine. The cervix was dilated to 27 French. Eight afterloading Simon's capsules were inserted, six in the uterine corpus, one in the lower uterine segment and one in the endocervix. This was accomplished following marking with interstitial marking grains in the cervix.

Plain gauze packing was placed in the vagina to stabilize the system. A 1/4" Penrose was also used to stabilize the system. A Foley catheter was inserted into the bladder. The patient was taken to the recovery room in good condition. Anesthesia was given in a paracervical fashion, 1% Xylocaine and 1/4% Marcaine.

The patient tolerated the procedure well and was removed to the Radiation Oncology Department for dosimetry.

ICD-10-PCS codes: _____

CODING EXERCISE 2

PREOPERATIVE DIAGNOSIS: Colonic carcinoma with pelvic recurrence

POSTOPERATIVE DIAGNOSIS: Colonic carcinoma with pelvic recurrence

OPERATION: Placement of Ham applicator onto tumor bed in the presacral region for HDR (high dose rate) brachytherapy

FINDINGS:

Gross resection of a 4 x 3 x 4 cm pelvic mass in the presacral region

The patient is a 37-year-old female who has a diagnosis of a Duke's B2 sigmoid colon carcinoma, status post surgical resection in December 1991 and followed by postoperative 5FU and Levamisole chemotherapy (January 1991 through early September 1992). However, a recent follow-up study showed elevation of CEA to 91 and CAT scan of the abdomen and pelvis demonstrated the presence of a pelvic mass. Colonoscopy was reportedly normal, but there was a strictured area requiring a pediatric colonoscope to pass. Further metastatic workup showed no evidence of distant metastases.

PROCEDURE:

Today, the patient was taken to the IORT suite, and the surgeon performed a gross resection of the 4cm pelvic mass in the presacral region. The bowel and bladder were retracted away from the tumor site. We evaluated the tumor bed intraoperatively. The area at risk was indicated by the surgeon and marked with surgical clips. A target area of 8 x 12 cm was determined. The Ham applicator with preloaded dummy ribbons was then placed right onto the tumor bed. It was packed in position with gauze so that the applicator lay in contact with the tumor bed. Localization films were taken to confirm the appropriate position of the applicator. Nine of the twelve afterloading catheters were selected to use and were connected to the Gammed unit via source guide tubings. The tubings were supported in position by "Ham-sandwich" clamp. Following dosimetric planning, a dose of 1,000 cGy at 0.5cm was delivered. The patient tolerated the procedure well without complication. All the catheters and applicator were removed and the wound was then closed by the surgeon.

ICD-10-PCS codes: _____

CODING EXERCISE 3

PREOPERATIVE DIAGNOSIS: Adenocarcinoma, rectum, primary, s/p LAR, hepatic metastases, s/p resection; hepatic artery infusion chemotherapy and failure of therapy

POSTOPERATIVE DIAGNOSIS: Adenocarcinoma, rectum, primary, s/p LAR, hepatic metastases, s/p resection; hepatic artery infusion chemotherapy and failure of therapy

OPERATION: Hepatic interstitial intraoperative radiation therapy

FINDINGS:

There were 3 masses in the liver, one of which measured approximately 6cm in largest diameter, one of which measured approximately 3cm in largest diameter, and one, 1.5cm in largest diameter. The 6cm lesion was located in segment 4 and 8. The 3cm and 1cm lesions were located more superficially in segment 5 centrally and toward the edge of the right lobe of the liver. A dual catheter pump was placed. There were numerous adhesions surrounding the entire liver in all dimensions and spaces.

PROCEDURE:

Under GETA, with the patient in supine position, a Foley catheter was inserted and a routine prepping and draping was accomplished. Following preparation, the abdomen was entered through a previously utilized chevron incision. The above findings were noted. Approximately 3 hours were spent in sharp careful dissection to mobilize the liver from all surrounding structures, including the diaphragm, the colon, the bed of the right kidney, the stomach and the left half of the diaphragm. There were several large nodes in the porta hepatis, but these did not appear to be malignant. The masses were outlined as indicated above. In the midline, the fusion of falciform ligament to the liver surface and diaphragm was severe. The prospect of entering the hepatic vein limited this dissection to some extent, but we were able to mobilize sufficiently to perform the hepatic interstitial intraoperative radiation therapy. Following complete mobilization of the liver and assessment of the lesions using ultrasonography, ultrasound and manually guided placement of 9 Mick catheters was done into the main lesion. While a template could not be used, an attempt was made to keep the applicator guidance tubes as parallel to each other as possible. Posterior extent of penetration of the tumor was assessed manually. Ultrasonography confirmed that the tubes were lined up parallel to each other to a reasonable extent. Following completion of intraoperative hepatic interstitial radiation administered in two treatment sequences to the 6cm and then the smaller lesions, the abdomen was checked for hemostasis. A hemopad which had been put on the diaphragm was removed. Jackson-Pratt drains were placed above and below the liver, the lower one in the Foramen of Winslow. A small bile leak present on the surface of the right lobe of liver bed had long since stopped, but the drain was placed there just in case of subsequent drainage. The abdomen was then closed with No 1 PDS suture material both to the posterior and anterior rectus sheaths. The skin was closed with clips.

A midline incision was made in the lower abdomen and the pump pocket was entered with the cautery. The sutures were removed and the pump was removed. A reliovac drain was placed in this space and the skin was closed with clips.

The patient had sterile dressings applied. Under a separate set of dressing and preparation, a Mediport catheter was inserted. The Mediport was inserted in the left subclavian using the percutaneous technique. EBL: 500cc. Sponge, needle and instrument counts correct on two occasions. The patient tolerated the procedure well and was taken to the recovery room in good condition.

ICD-10-PCS codes: _____

Chapter 10

Osteopathic Section
Rehabilitation and Diagnostic
Audiology Section
Chiropractic Section

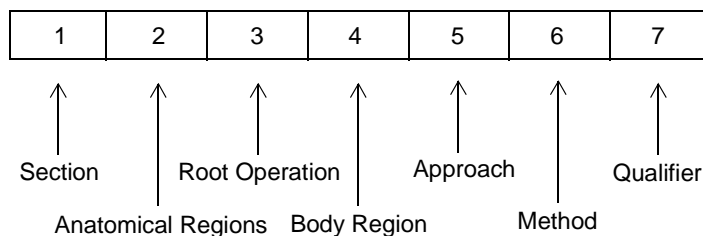
The contents of the Osteopathic, Rehabilitation and Diagnostic Audiology , and Chiropractic sections are described in this chapter. The meaning of each character in these sections is identified. Practice exercises requiring the assignment of applicable seven character codes are included.

Contents	Osteopathic Section Rehabilitation and Diagnostic Audiology
	Section
	Chiropractic Section 10.1
	Osteopathic 10.3
	Characters 10.3
	<i>Treatment</i> 10.3
	Exercise one 10.4
	Rehabilitation and Diagnostic Audiology 10.4
	Characters 10.4
	<i>Treatment</i> 10.4
	<i>Assessment</i> 10.4
	<i>Fitting(s)</i> 10.5
	<i>Caregiver Training</i> 10.5
	Exercise two 10.5
Chiropractic 10.6	
Characters 10.6	
Exercise three 10.6	

Osteopathic Section Diagnostic Audiology and Rehabilitation Section Chiropractic Section

Osteopathic

Characters



The first character for the Osteopathic section is 8. There is only one body system character - X for anatomical regions. The only root operation is:

Treatment

Manual treatment to eliminate or alleviate somatic dysfunction and related disorders.

The body region on which the osteopathic manipulation is performed is identified by the fourth character. The approach for osteopathic manipulation is always Z for none. The sixth character identifies the method by which the manipulation is accomplished. There are no qualifiers in the Osteopathic section, the seventh character always has the value Z for none.

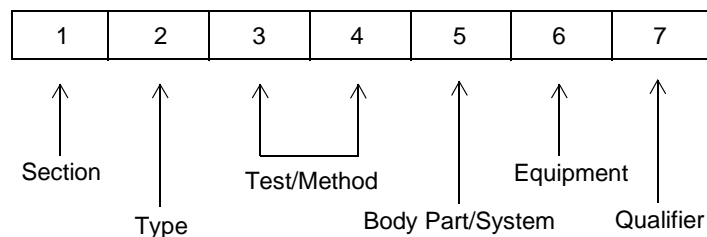
Exercise one

1. The only body system for the Osteopathic section is _____ assigned a value of _____.
2. The body region character for pelvis is _____.
3. The number of root operations included in the Osteopathic section is _____.
4. The seven character ICD-10-PCS code for osteopathic general mobilization of the lower extremity is _____.
5. The seven character ICD-10-PCS code for osteopathic articulatory raising treatment of the cervical region is _____.

Rehabilitation and Diagnostic Audiology

Rehabilitation and Diagnostic Audiology procedures include physical therapy, occupational therapy, speech-language pathology and audiology services.

Characters



The first character for Rehabilitation and Diagnostic Audiology section procedures is 9. The second character identifies the type of procedure. There are four types:

Treatment Use of specific activities or methods to develop, improve and/or restore the performance of necessary functions, compensate for dysfunction and/or minimize debilitation.

Assessment Includes a determination of the patient's diagnosis when appropriate, need for treatment, planning for treatment, periodic assessment and documentation related to these activities

<i>Fitting(s)</i>	Design, fabrication, modification, selection and/or application of splint, orthosis, prosthesis, hearing aids and/or other rehabilitation device.
<i>Caregiver Training</i>	<p>Educating caregiver with the skills and knowledge used to interact with and assist the patient</p> <p>The third and fourth characters specify the exact test or method employed. There are numerous tests and methods identified by two character values(e.g., 85 coordination/dexterity). A separate listing of tests/methods is provided for each of the four types of rehabilitative procedures: treatment, assessment, fittings and care giver training. The fifth character is the body part or region for which services are being performed.</p> <p>Character 6 identifies the type of equipment used by broad categories. Qualifiers are used with certain tests/methods to specify whether the test/method is group or individual.</p>

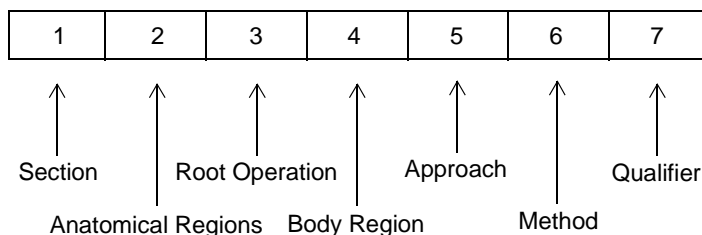
Exercise two

1. The first character of a code for an audiology procedure is _____.
2. The planning for treatment and determination of a patient's diagnosis when appropriate represents _____ type of rehabilitation procedure.
3. The initial adjustment of a rehabilitative device or prosthesis and concurrent training represents _____ type of rehabilitative procedure.
4. An assessment of gait and/or balance is assigned third and fourth character _____.
5. The seven character ICD-10-PCS code for individual therapeutic exercise treatment of the musculoskeletal system upper extremity using an electromechanical device is _____.
6. The seven character ICD-10-PCS code for individual gait training with a cane is _____.
7. The seven character ICD-10-PCS code for individual cochlear implant rehabilitative treatment using an audiometer is _____.
8. The seven character ICD-10-PCS code for care giver learning wound care of infected foot is _____.
9. The seven character ICD-10-PCS code for fitting of crutches and concurrent instruction in their use is _____.

10. The seven character ICD-10-PCS code for assessing Mary's ability to dress herself using adaptive devices is _____.

Chiropractic

Characters



The letter G is the first character for the Chiropractic section. There is only one body system character - X for anatomical regions. The only root operation in the Chiropractic section is:

Manipulation

Manual procedure that involves a directed thrust to move a joint past the physiological range of motion, without exceeding the anatomical limit.

The fourth character identifies the body region on which the chiropractic manipulation is performed. The approach for chiropractic manipulation is always Z for none. The sixth character is the method which describes the means by which the manipulation is accomplished. There are no qualifiers in the Chiropractic section, the seventh character is always Z for none.

Exercise three

1. Chiropractic manipulation may be performed on _____ body regions.
2. The approach character for chiropractic manipulation is _____.
3. The body region character for cervical region is _____.
4. The seven character ICD-10-PCS code for chiropractic manipulation of the lumbar region is _____.
5. The seven character ICD-10-PCS code for mechanically assisted chiropractic manipulation of the ribs is _____.

Chapter 11

*Extracorporeal Assistance and
Performance Section
Extracorporeal Therapies Section*

This chapter describes extracorporeal assistance, performance, and therapies. Root operations specific to these sections are defined. Practice problems assigning these root operations are included.

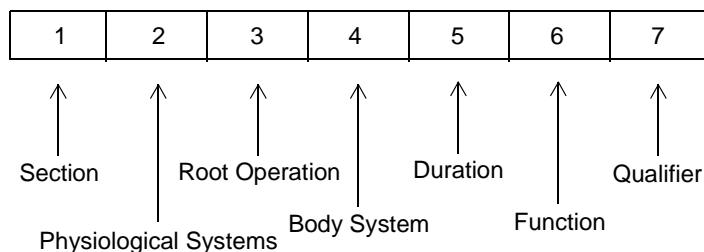
Contents	Extracorporeal Assistance and Performance Section
	Extracorporeal Therapies Section 11.1
	Extracorporeal Assistance and Performance 11.3
	Characters 11.3
	Assistance 11.4
	Performance 11.4
	Restoration 11.4
	Exercise one 11.4
	Extracorporeal Therapies 11.5
	Characters 11.5
	Decompression 11.5
	Hyperthermia 11.5
	Hypothermia 11.5
	Pheresis 11.5
	Phototherapy 11.5
	Ultraviolet Light Therapy 11.5
	Exercise two 11.6

Extracorporeal Assistance and Performance Section Extracorporeal Therapies Section

Extracorporeal Assistance and Performance

In an extracorporeal assistance and performance procedure, equipment external to the body is used to assist in performing a physiological function.

Characters



The first character for procedures in the Extracorporeal Assistance and Performance section is the letter B. There is only one physiological body system identified - X for physiological systems .

There are three root operations in the Extracorporeal Assistance and Performance section:

<i>Assistance</i>	Taking over a portion of a physiological function by extracorporeal means
<i>Performance</i>	Completely taking over a physiological function by extracorporeal means
<i>Restoration</i>	Returning, or attempting to return, a physiological function to its original state by extracorporeal means

The body system for which extracorporeal assistance and performance is being used is identified by the fourth character. Body systems designated are cardiac, circulatory, respiratory, biliary, and urinary. The fifth character specifies the duration of the extracorporeal assistance or performance (single, intermittent or continuous). For respiratory ventilation assistance or performance, the range of hours is specified (less than 24 hours, 24-96 hours, or greater than 96 hours).

The sixth character specifies the physiological function being assisted or performed (e.g., oxygenation, ventilation, etc.). Qualifiers identify the type of equipment used in the extracorporeal assistance or performance.

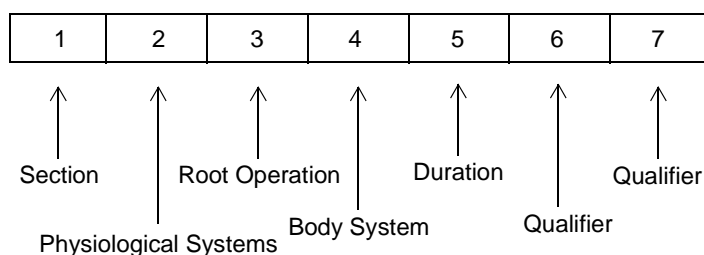
Exercise one

1. The seven character ICD-10-PCS code for continuous mechanical ventilation, 48 hours is_____.
2. The seven character ICD-10-PCS code for intermittent hyperbaric oxygenation is_____.
3. The seven character ICD-10-PCS code for restoring cardiac rhythm is_____.
4. The seven character ICD-10-PCS code for prolonged extracorporeal circulation for cardiopulmonary insufficiency is_____.
5. The seven character ICD-10-PCS code for application of vaso-pneumatic trousers is_____.

Extracorporeal Therapies

In an extracorporeal therapy, equipment external to the body is used for a therapeutic purpose that does not involve the assistance or performance of a physiological function.

Characters



The first character for the Extracorporeal Therapies section is C. The only physiological body system identified for the Extracorporeal Therapy section is X for physiological systems.

There are six root operations in the Extracorporeal Therapies section:

<i>Decompression</i>	Extracorporeal elimination of undissolved gas from body fluids
<i>Hyperthermia</i>	Extracorporeal raising of body temperature
<i>Hypothermia</i>	Extracorporeal lowering of body temperature
<i>Pheresis</i>	Extracorporeal separation of blood products
<i>Phototherapy</i>	Extracorporeal treatment by light rays
<i>Ultraviolet Light Therapy</i>	Extracorporeal treatment by ultraviolet light

The body system on which the extracorporeal therapy is performed is specified in the fourth character (i.e., circulatory, skin or whole body). The fifth character specifies the duration of the extracorporeal therapy (single or intermittent). The sixth character is not used for extracorporeal therapies, and always has the value Z for none. The only qualifier specifies the components of the circulatory system on which pheresis is performed.

Exercise two

1. The seven character ICD-10-PCS code for total body hyperthermia is _____.
2. The seven character ICD-10-PCS code for decompression chamber therapy is _____.
3. The seven character ICD-10-PCS code for phototherapy of the newborn is _____.
4. The seven character ICD-10-PCS code for therapeutic platelet pheresis is _____.
5. The seven character ICD-10-PCS code for total body hypothermia is _____.
6. The seven character ICD-10-PCS code for actinotherapy of skin is _____.

Chapter 12

Mental Health Section, Miscellaneous Section

*This chapter describes mental health and miscellaneous therapies.
Root operations specific to these sections are defined. Practice problems assigning these root operations are included.*

Contents	Mental Health Section, Miscellaneous Section 12.1
	Mental Health 12.3
	Characters 12.3
	Exercise one 12.4
	Exercise two 12.4
	Miscellaneous 12.7
	Characters 12.7
	Exercise three 12.7

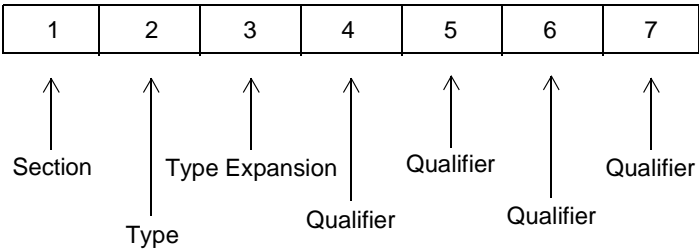
Mental Health Section

Miscellaneous Section

Mental Health

The Mental Health section provides codes to describe the full range of services provided by psychiatrists and other mental health professionals.

Characters



The first character for Mental Health procedures is F. The second character specifies the procedure, such as 2, crisis intervention, or 6, counseling. The third character is for procedure expansion (e.g., to indicate that counseling was 0, educational, or 1, vocational).

The fourth character is a qualifier indicating:

- 0 Impaired communication due to physical or sensory disability
- 1 Impaired intellectual ability
- 2 Agitated or non-cooperative patient
- 3 Impaired communication due to cultural or language differences
- Z None

Characters 5, 6, and 7 are designed as qualifier characters, but no qualifiers are specified, so all Mental Health section codes end in ZZZ for none.

Exercise one

1. The procedure character for hypnosis is_____.
2. The procedure character for biofeedback is_____.
3. The qualifier identifying an agitated or non-cooperative patient is_____.
4. The seven character ICD-10-PCS code for crisis intervention in a child of limited intelligence is_____.
5. The patient's schizophrenia is responding to medication management although she is still somewhat agitated. The seven character ICD-10-PCS code assigned for the patient's visit is_____.
6. The seven character ICD-10-PCS code for diagnostic and evaluation interview with a patient with impaired intellectual ability is_____.
7. The seven character ICD-10-PCS code for biofeedback with galvanic skin response in a cooperative patient is_____.
8. The seven character ICD-10-PCS code for electroconvulsive therapy for bilateral multiple seizures in a patient who speaks little English is_____.

Exercise two

Assign the correct ICD-10-PCS codes to the mental health procedures performed in the following episodes of care.

CODING EXERCISE 1

This 70-year-old married female was admitted because she has been extremely depressed and crying, unable to sleep or eat, unable to concentrate or function at home. She didn't respond to outpatient therapy. She was managed on medication therapy with individual and group supportive psychotherapy. On the unit she started doing more things for herself and started enjoying herself. She was still quite anxious but much better than before. We guided her to develop positive short-term goals and she followed through. She started feeling much better so she was discharged on medical management to be followed in the office.

Discharge diagnosis: Major depression, single episode, moderate.

ICD-10-PCS codes: _____

CODING EXERCISE 2

This 87-year-old male was admitted because of episodic severe outburst of depressed agitation and anger. Psychiatric evaluation indicated this patient has become more and more disabled over the years and has been kept at home with round the clock home health care assistance. Now he is too agitated and confused to be managed at home. Treatment included milieu and occupational therapy, individual and group psychotherapy. Medications used were Haldol IM and orally, multivitamins, vitamin B complex, halcion, surfak, ascriptin, norpramin, lasix and colace. Course in hospital was one of fairly good settling down to a non-moaning and non-agitated state with episodic outbursts on medication management. He remained confused and when stabilized was transferred to a nursing home.

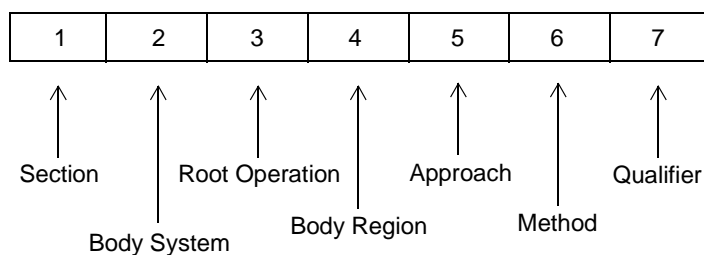
Diagnosis: Organic dementia due to Alzheimer's disease.

ICD-10-PCS codes: _____

Miscellaneous

The Miscellaneous section includes acupuncture, therapeutic massage and yoga therapy.

Characters



The first character for Miscellaneous section procedures is H. There is only one second character - X for anatomical regions. The only root operation is 0 for Other therapies - Methodologies which attempt to remediate or cure a disorder or disease.

There is only one body region - 0 for the whole body. There is no approach, so a Z is assigned for the fifth character. Character 6 is assigned to method, and three methods are delineated:

- 0 Acupuncture
- 1 Therapeutic massage
- 2 Yoga therapy

There are no qualifiers, so Z, none, is assigned to the seventh character.

Exercise three

1. The _____ character identifies the therapy method.
2. The seven character ICD-10-PCS code for a therapeutic whole body massage is _____.
3. The patient underwent yoga therapy for migraine headaches. The ICD-10-PCS seven character code is _____.
4. The seven character ICD-10-PCS code for acupuncture therapy for osteoarthritis of the knees is _____.
5. The seven character ICD-10-PCS code for therapeutic massage of the back is _____.

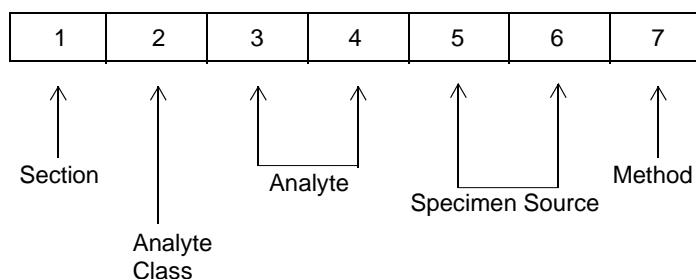
Chapter 13

Laboratory Section

This chapter describes laboratory procedures. A practice exercise is included.

Contents	Laboratory Section 13.1
	Exercise one 13.4

Laboratory Section



Laboratory procedure codes are identified by the letter D in the first character.

The second character, the analyte class, is a categorization of the major classes of tests that are performed. There are six major classes and two extensions in the laboratory section: Blood Bank, Hematology, Chemistry & Other Chemistry, Microbiology & Other Microbiology, Toxicology and Pathology.

The third and fourth characters specify the analyte, i.e., the material being identified or measured for each analyte class (e.g., calcium, hematocrit).

The fifth and sixth characters identify the specimen being analyzed (e.g., blood, fluid) and the source of the specimen, if applicable (e.g., cerebral spinal fluid).

Character seven is the method used in the analysis (e.g., stain, culture). It is not always necessary to specify the method to be used in a laboratory test. When a specific method is not requested, standard method is used in character seven.

Exercise one

1. The analyte class for ABO Group and Rh typing is _____.
2. The seven character code for a complete blood count (CBC) is _____.
3. The code character that indicates a microbiology test is _____.
4. The seven character ICD-10-PCS code for the test for lead in a hair sample is _____.
5. The seven character ICD-10-PCS code for the test for creatinine in a 24 hour urine sample is _____.

Appendix A

Answer Key

This appendix contains answers to exercises shown in this manual.

Contents	Answer Key A.1
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	Chapter 2 A.5
	Chapter 3 A.6
	Chapter 4 A.12
	Chapter 5 A.12
	Chapter 6 A.13
	Chapter 7 A.13
	Chapter 8 A.14
	Chapter 9 A.14
	Chapter 10 A.14
	Chapter 11 A.15
	Chapter 12 A.15

Answer Key

Chapter 1

- Exercise one**
1. complete
 2. expandable
 3. multiaxial
 4. standardized terminology

- Exercise two**
1. seven
 2. alphanumeric
 3. 34
 4. O, I
 5. procedure

- Exercise three**
1. 9
 2. 1
 3. 5
 4. 0
 5. 7
 6. 0

- Exercise four**
1. 9
 2. N
 3. P
 4. J
 5. Q

6. 1
7. T
8. 5
9. W
10. B

- Exercise five**
1. transfer
 2. resection
 3. inspection
 4. transplantation
 5. insertion
 6. removal
 7. fragmentation
 8. occlusion
 9. revision
 10. release

- Exercise six**
1. resection
 2. repair
 3. drainage
 4. bypass
 5. excision

- Exercise seven**
1. 0JH6
 2. 0TF
 3. 0CJ
 4. 07B
 5. 01N5

- Exercise eight**
1. destruction
 2. excision
 3. drainage
 4. bypass
 5. drainage

- Exercise nine**
1. 0 medical and surgical section
7 lymphatic and hemic system
T resection
5 lymphatics right axillary
0 open
Z none
Z none
 2. 0 medical and surgical section
D gastrointestinal system
B excision

5 appendix
4 percutaneous endoscopic
Z none
Z none

3. 0 medical and surgical section
H skin and breast
B excision
T right breast
3 percutaneous
Z none
Z none

Exercise ten 1. F
2. T
3. T
4. F

Chapter 2

Exercise one 1. 8
2. H
3. T
4. W
5. G
6. 2

Exercise two 1. 5
2. S
3. N
4. A
5. F

Exercise three 1. ODT6
2. ODBH
3. ODTJ
4. ODBN
5. ODT9

Exercise four 1. skin or mucous membrane, external orifice
2. endoscopic
3. intraluminal
4. none
5. F

Exercise five

1. 3
2. 9
3. 0
4. C
5. 1
6. 4

Exercise six

1. 3
2. 9
3. 0
4. 1
5. 4
6. Z

Exercise seven

1. T
2. T
3. F
4. T

Exercise eight

1. D (large intestine)
2. bypass
3. B (excision)
4. detachment
5. resection and bypass

Chapter 3

Exercise one

1. bypass
2. C
3. 008T
4. 00W60Y1
5. 009N3ZZ

Exercise two

1. release
2. F
3. 01J4
4. 0TN00ZZ
5. 0DNW4ZZ

Exercise three (coding exercises)

1. 00B80ZZ
2. 00B80ZY

3. a. 01B60ZZ
b. 01BJ0ZZ
c. 01R60ZZ
d. 0PPD04Z
4. 005P3ZZ
5. 01N54ZZ

- Exercise four**
1. localization
 2. 9
 3. 0212
 4. 02W0091
 5. 00K70ZZ

- Exercise five**
1. intraluminal
 2. M
 3. 03Q7
 4. 03140JN
 5. 03BL0ZZ

- Exercise six**
1. occlusion
 2. C
 3. 041K0JL
 4. 04100ZZ
 5. 04Q007Z

- Exercise seven**
1. N
 2. restriction
 3. 05VB3
 4. 05CP0ZZ
 5. 05Q70ZZ

- Exercise eight**
1. destruction
 2. 7
 3. 0610
 4. 06Q00ZZ
 5. 06DQ1ZZ, 06DS1ZZ

- Exercise nine (coding exercises)**
1. 05H55DZ
 2. 05CD1ZZ
 3. a. 0211993
b. 06BP0ZZ
 4. a. 02705ZZ
b. 3X075J0
 5. 028X0ZZ
 6. a. 04100JK

- b. 05H552Z
- 7. 03BJCZZ
- 8. 031S0ZL

- Exercise ten**
- 1. excision
 - 2. J
 - 3. 07BB
 - 4. 07T20ZZ
 - 5. 07TR0ZZ

- Exercise eleven**
- 1. extirpation
 - 2. N
 - 3. 08XL
 - 4. 08Y8ZZ0
 - 5. 087X1ZZ

- Exercise twelve**
- 1. F
 - 2. N
 - 3. 09TM
 - 4. 099700Z, 099800Z
 - 5. 09CK4ZZ

- Exercise thirteen**
- 1. T
 - 2. D
 - 3. 0B711
 - 4. 0B110F5
 - 5. 0BTC0ZZ

- Exercise fourteen (coding exercises)**
- 1. a. 099Q4ZZ
 - b. 099R4ZZ
 - c. 09BV4ZZ
 - d. 09BW4ZZ
 - e. 09BY4ZZ
 - 2. a. 07TC0ZZ
 - b. 07TJ0ZZ
 - 3. 0CQ00ZZ
 - 4. 0BYK0Z0
 - 5. a. 0BBC0ZX
 - b. 07B70ZX
 - 6. 08RK0JZ
 - 7. 09Q807Z
 - 8. 07BM0ZZ

Exercise fifteen

1. insertion
2. R
3. 0CCB
4. 0CTP0ZZ, OCTQ0ZZ
5. 0CW23BQ

Exercise sixteen

1. inspection
2. V
3. 0DQ60
4. 0DW30Z1
5. 0DJN8ZZ

Exercise seventeen

1. pulverization
2. B
3. 0F91
4. 0FQ91ZZ
5. 0F7B6ZZ, 0F796ZZ

Exercise eighteen (coding exercises)

1. a. 0DJ58ZZ
b. 0BJ08ZZ
2. a. 0DB60ZZ
b. 0DHA1UZ
3. a. 0X9F00Z
b. 0FT40ZZ
4. 0DWB0Z1
5. a. 0DTF0ZZ
b. 0DBB0ZZ
6. a. 0FBF0ZZ
b. 07TR0ZZ
7. 0CT90ZZ
8. 0DBK8ZZ
9. a. 0CB50ZZ
b. 0CB60ZZ
10. a. 0CDWZZ2
b. 0CDXZZ2
c. 0CQ60ZZ

Exercise nineteen

1. T
2. B
3. 0GB00
4. 0GS20ZZ
5. 0GBG0ZZ, 0GBH0ZZ

Exercise twenty

1. T
2. Y
3. 0HNGZZZ

4. 0HTT0ZZ, 07T50ZZ
5. 0HBMZZZ

Exercise twenty one

1. R
2. C
3. 0JH0
4. 0JH60PZ
5. 0JP80VZ

Exercise twenty two (coding exercises)

1. 0JCJ0ZZ
2. 0H0V0JZ
3. 0HBRZZZ
4. 0JH10NZ
5. 0HQV0ZZ
6. a. 0HBNZZZ
b. 0HBJZZZ
c. 0HRNZ7Z
7. 0HB9ZZZ
8. a. 0GBP0ZZ
b. 07B10ZX

Exercise twenty three

1. A
2. 4
3. 0KMD
4. 0KB90ZX
5. 0KQK0JZ

Exercise twenty four

1. T
2. H
3. 0LQ80
4. 0LM70ZZ
5. 0L8N3ZZ

Exercise twenty five

1. D
2. S
3. 0M923
4. 0MN60ZZ
5. 0MQY0ZZ

Exercise twenty six

1. F
2. P
3. 0NP00
4. 0NW004Q
5. 0NQR04Z

- Exercise twenty seven**
1. B
 2. S
 3. 0PBF
 4. 0PPH0MZ
 5. 0PQF06Z
- Exercise twenty eight**
1. T
 2. 1
 3. 0QTF0
 4. 0QRH0BZ, 0QRK0BZ
 5. 0QCG0ZZ
- Exercise twenty nine**
1. T
 2. 6
 3. 0SBB
 4. 0SGD07Z, 0QB20ZZ
 5. 0SRC0JZ
- Exercise thirty (coding exercises)**
1. 0LB50ZZ
 2. 0MQH0ZZ
 3. 0PQJ04Z
 4. 0RPKZ5Z, 2X3CZ1Z
 5. 0SB30ZZ
 6. 0LQQ0ZZ, 2X3QZ2Z
 7. 0RNC0ZZ
 8. 0QBP0ZZ
 9. 0QQG05Z
- Exercise thirty one**
1. T
 2. 4
 3. 0T21Z0Z
 4. 0TY00Z0
 5. 0T5B8ZZ
- Exercise thirty two**
1. T
 2. R
 3. 0VTQ0
 4. 0V29Z0Z
 5. 0VQCZZZ
- Exercise thirty three**
1. D
 2. N
 3. 0WT90ZZ
 4. 0WTN0ZZ
 5. 0WLL5DZ

Exercise thirty four

1. Anatomical Regions
2. H
3. 0XJF4ZZ
4. 0XM40ZZ
5. 0X4L0K0

Exercise thirty five (coding exercises)

1. 0TF4ZZZ
2. 0TC51ZZ
3. 0T981OZ
4. 0V59ZZZ
5. a. 0V59ZZZ
b. 0V5CZZZ
6. 0WB08ZZ
7. 0XBKZZZ
8. 0XBC4ZX

Exercise thirty six

1. 0
2. 0Z6M0Z0
3. 0ZQ70ZZ
4. T
5. 0Y320ZZ

Exercise thirty seven (coding exercises)

1. 0Z6N0ZF
2. 0ZQ60ZZ

Chapter 4

Exercise one

1. A
2. 1
3. 10A071Z
4. 10E0ZZ6
5. 10905ZB

Exercise two (coding exercises)

1. 10A07ZZ
2. a. 10T00Z1
b. 10E0ZZZ
3. 10E17ZZ
4. a. 10T24ZZ
b. 0VL54ZZ
c. 0X8MZZZ
5. 10E17ZZ

Chapter 5

- Exercise one**
1. D
 2. T
 3. Z
 4. 2Y41Z5Z
 5. 2X5RZ2Z

- Exercise two**
1. 0
 2. irrigation
 3. R
 4. L
 5. 3X02340
 6. 30235H1
 7. 3X0T330
 8. 3X1M380
 9. 3X03561
 10. 3X03501

Chapter 6

- Exercise one**
1. 4X02ZM4
 2. 4X12Z4Z
 3. 4X09ZMZ
 4. 4X0214Z
 5. 4X01Z29
 6. 4X07Z0Z

Chapter 7

- Exercise one**
1. 1
 2. 4
 3. 0
 4. 2
 5. 3

- Exercise two (coding exercises)**
1. 5H02ZZL
 2. 5V45ZZ8
 3. 5P38XB5
 4. 544LZZZ

5. 5Q00ZZT
- 5Q01ZZT
- 5R0CZZP
6. 5F13XFX
7. 5Y4FZZR
8. 5348ZGZ
9. 5D14X9Z
10. 5T10XCZ
11. 5P38ZZZ
12. 5X28X0Z

Chapter 8

- | | |
|---------------------|--|
| Exercise one | <ol style="list-style-type: none"> 1. 7 2. Positron Emission Tomographic Imaging 3. Non-imaging Nuclear Medicine Assay 4. G 5. T1 |
|---------------------|--|

- | | |
|--|---|
| Exercise two (coding exercises) | <ol style="list-style-type: none"> 1. 6T13G4Z or 6T13XXZ 2. 6P1FXXW, 6P1YYYZ 3. 621GS13 or 621GXX3 4. 6P5PZZ4 5. 6G12XX3 |
|--|---|

Chapter 9

- | | |
|---------------------|--|
| Exercise one | <ol style="list-style-type: none"> 1. X 2. G 3. 3 4. 0 5. 0 |
|---------------------|--|

- | | |
|--|--|
| Exercise two (coding exercises) | <ol style="list-style-type: none"> 1. 0VH771Z, 7V9275Z or 7V92XXX, 7V9175Z or 7V91XXX 2. 0JB80ZZ and either 7X96Y5Z or 7X96XXX 3. 0FN00ZZ, 7FC020V or 7FC0XXX, 0X9F00Z, 0XPF00Z |
|--|--|

Chapter 10

- Exercise one**
1. Anatomical Regions, X
 2. 5
 3. 1
 4. 8X06Z2Z
 5. 8X01Z0Z

- Exercise two**
1. 9
 2. Assessment
 3. Fittings
 4. BF
 5. 9B35KHC
 6. 9B41ZFC
 7. 9B08Z1C
 8. 9F11ZZZ
 9. 9D10ZFC
 10. 9C76ZFY

- Exercise three**
1. 10
 2. Z
 3. 1
 4. GXB3ZZZ
 5. GXB8ZKZ

Chapter 11

- Exercise one**
1. BX1945Z
 2. BX05121
 3. BX2204Z
 4. BX02116
 5. BX02115

- Exercise two**
1. CX1G0ZZ
 2. CX050ZZ
 3. CX401ZZ
 4. CX350Z2
 5. CX2G0ZZ
 6. CX500ZZ

Chapter 12

- Exercise one**
1. F
 2. C
 3. 2
 4. F2Z1ZZZ
 5. F3Z2ZZZ
 6. F0Z1ZZZ
 7. FC7ZZZZ
 8. FB33ZZZ

- Exercise two (coding exercises)**
1. a. F4Z2ZZZ
b. F562ZZZ
c. FHZ2ZZZ
d. F3Z2ZZZ
 2. a. F4Z2ZZZ
b. F512ZZZ
c. FHZ2ZZZ
d. F3Z2ZZZ

- Exercise three**
1. 6th
 2. HX00Z1Z
 3. HX00Z2Z
 4. HX00Z0Z
 5. HX00Z1Z

Chapter 13

- Exercise one**
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 2. DH41050
 3. M
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